VOL. XLVII. No. 3 MARCH 1962

MECCANO MAGAZINE

1/3

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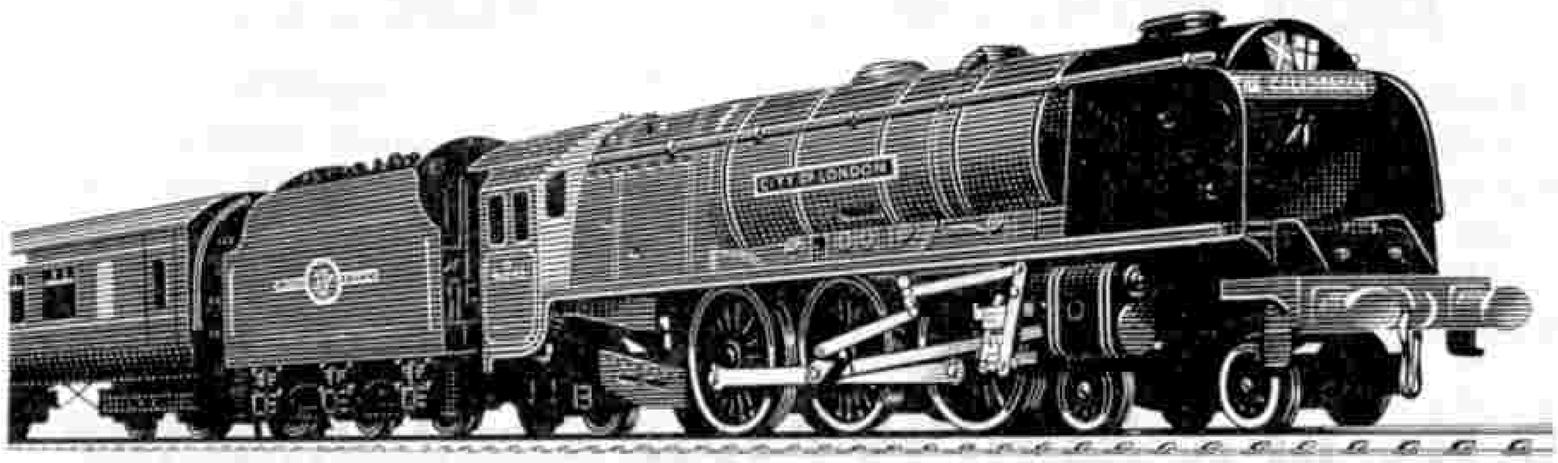
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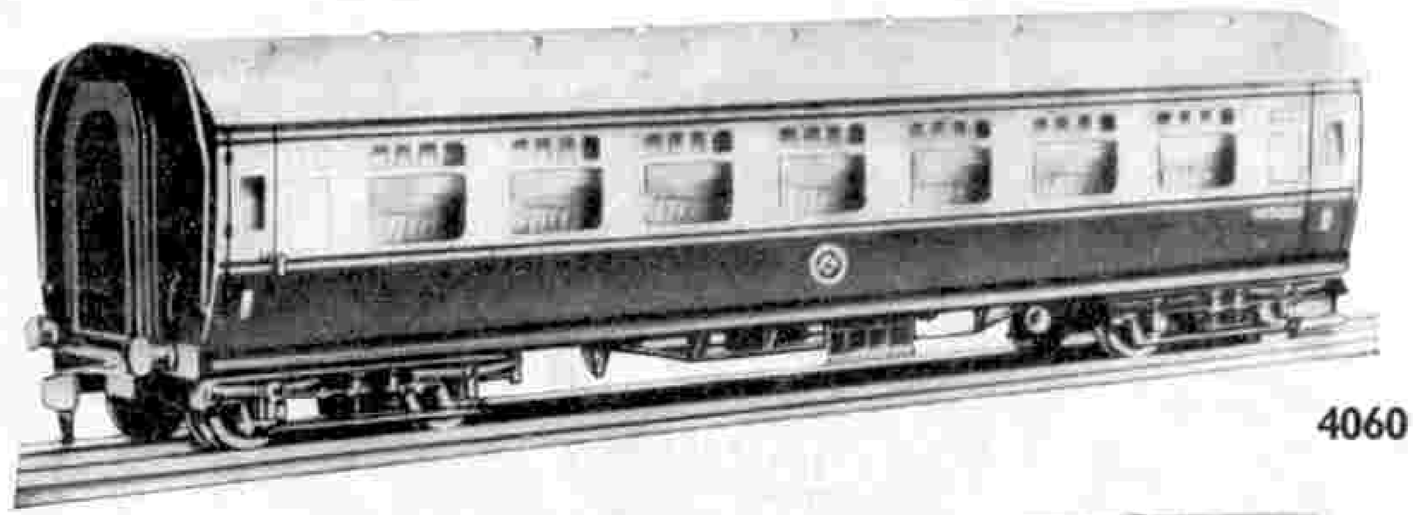
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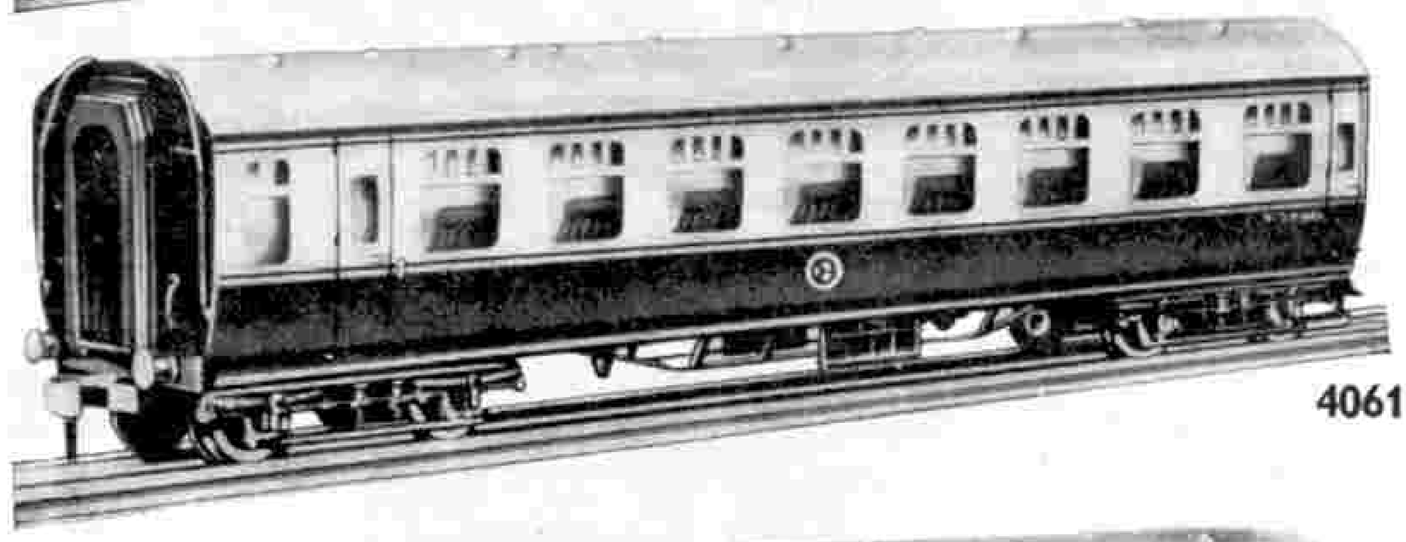
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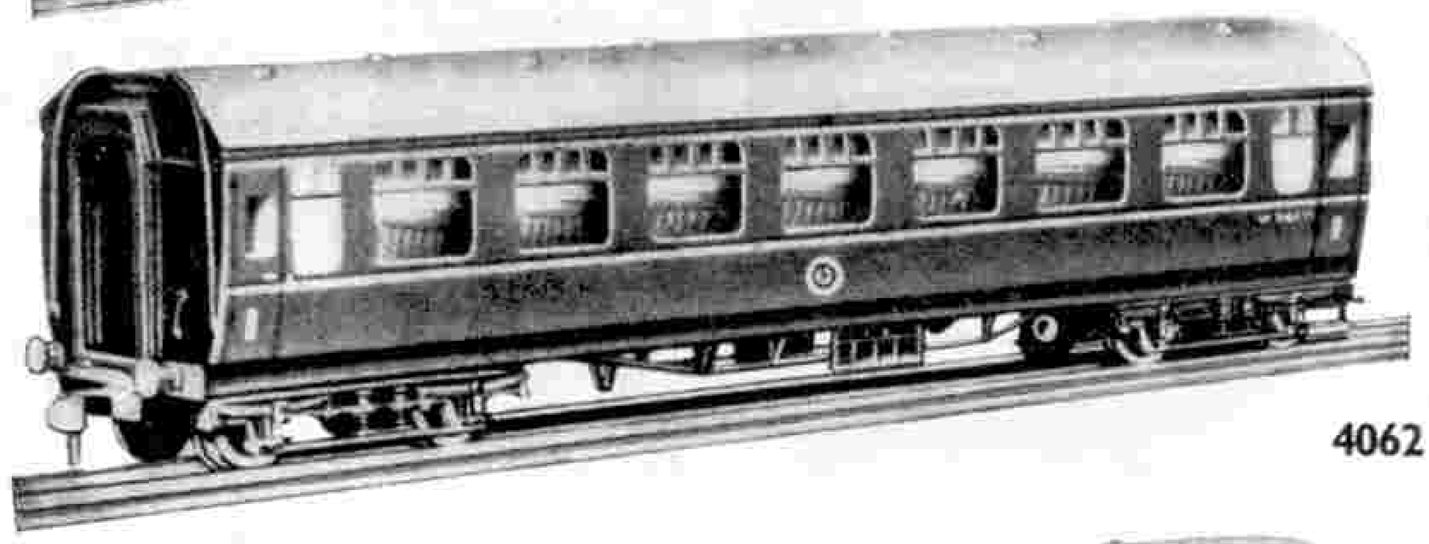
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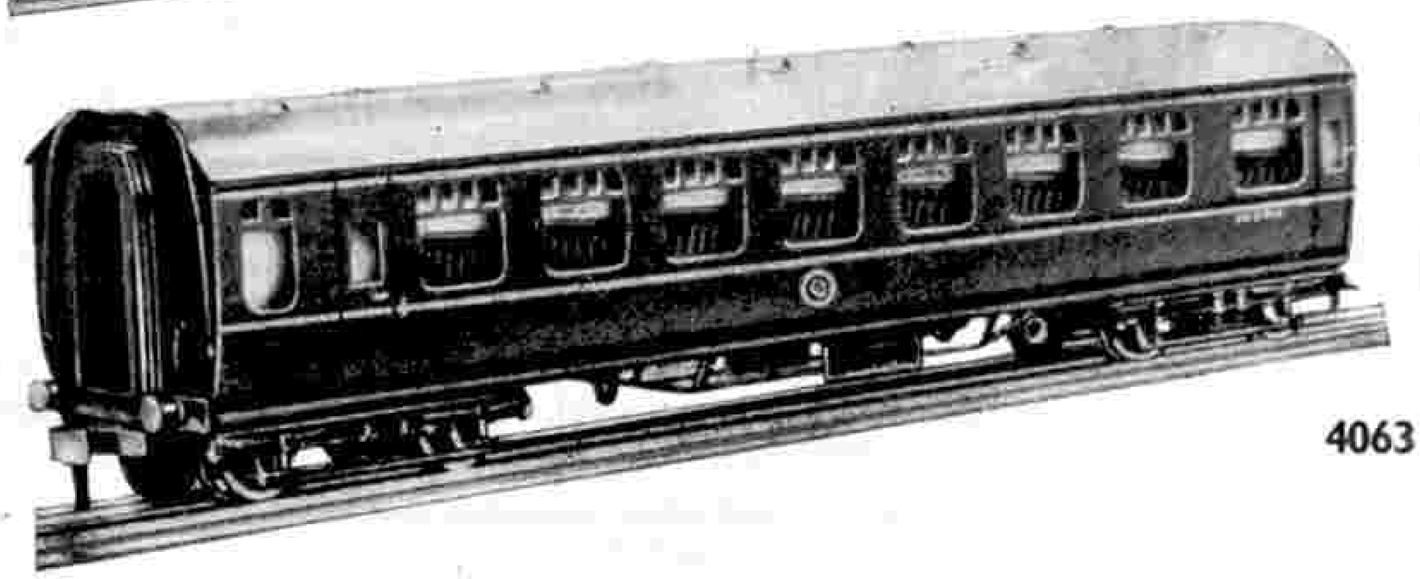
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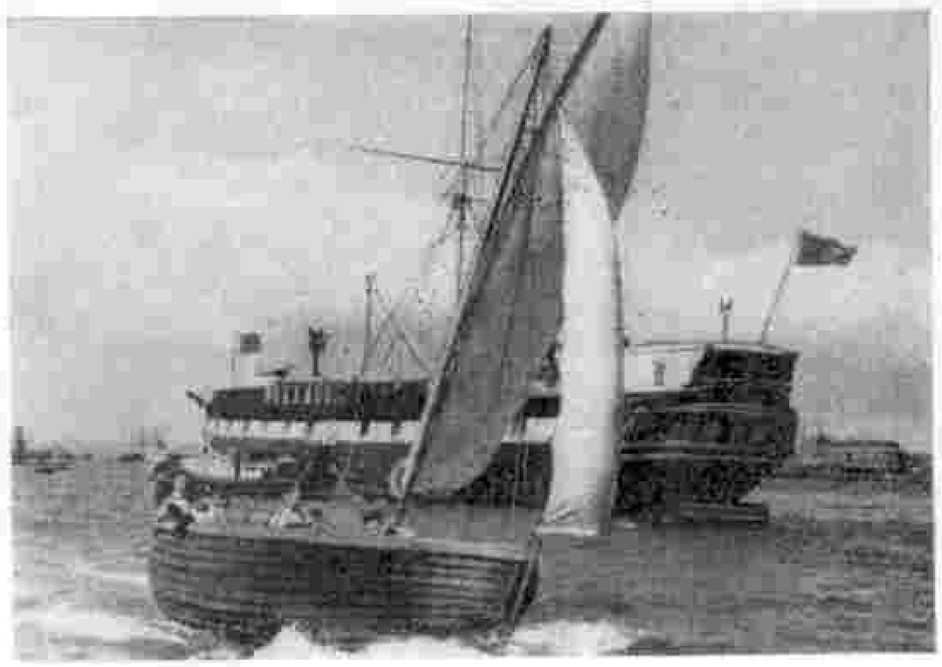
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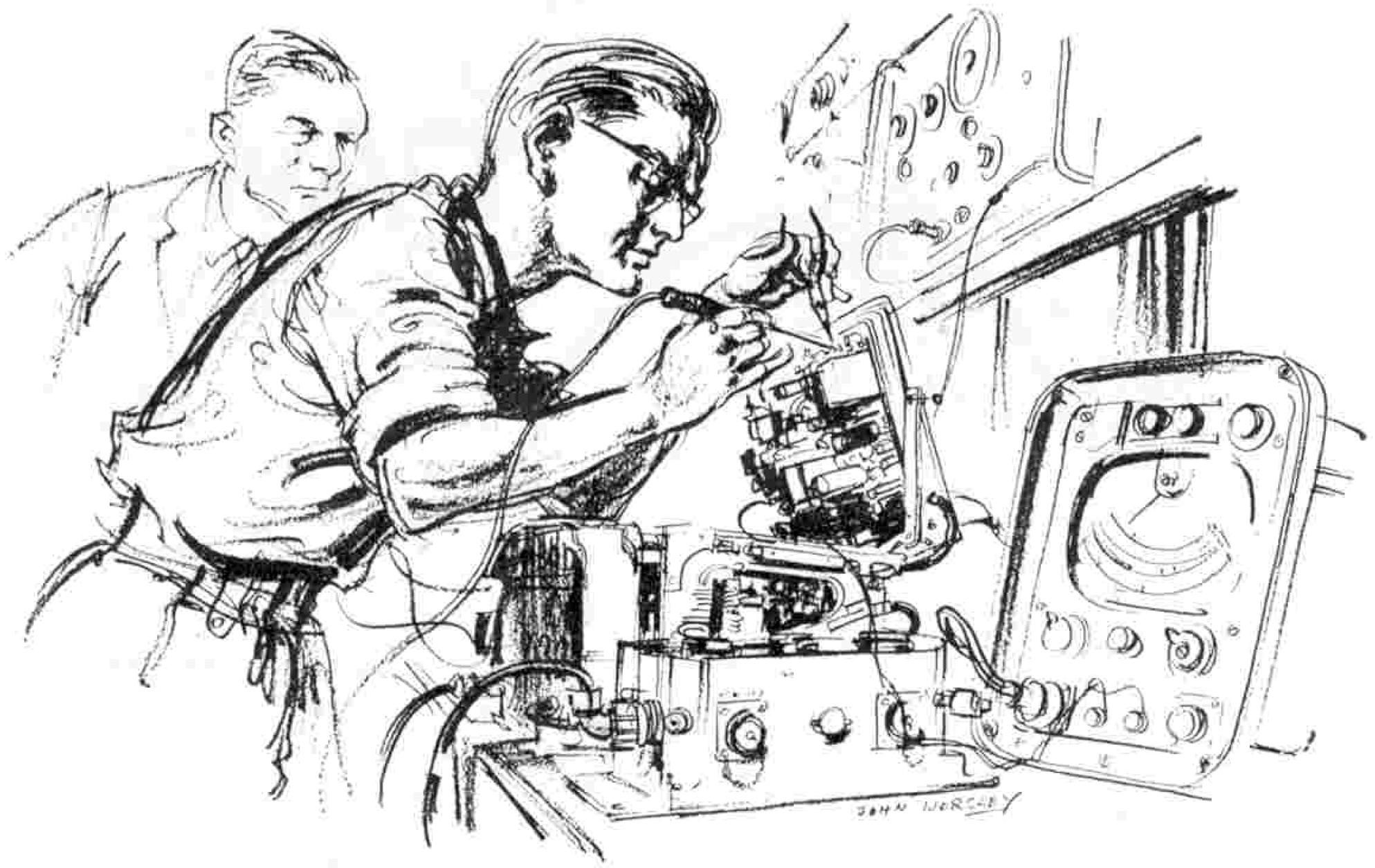
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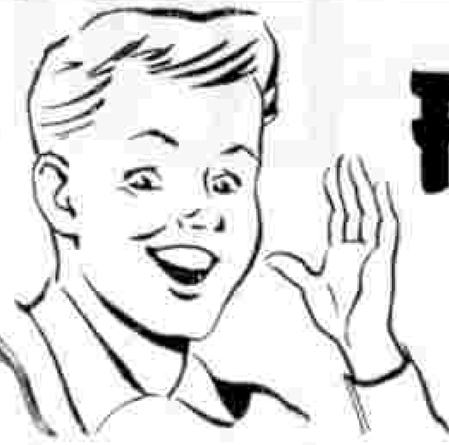
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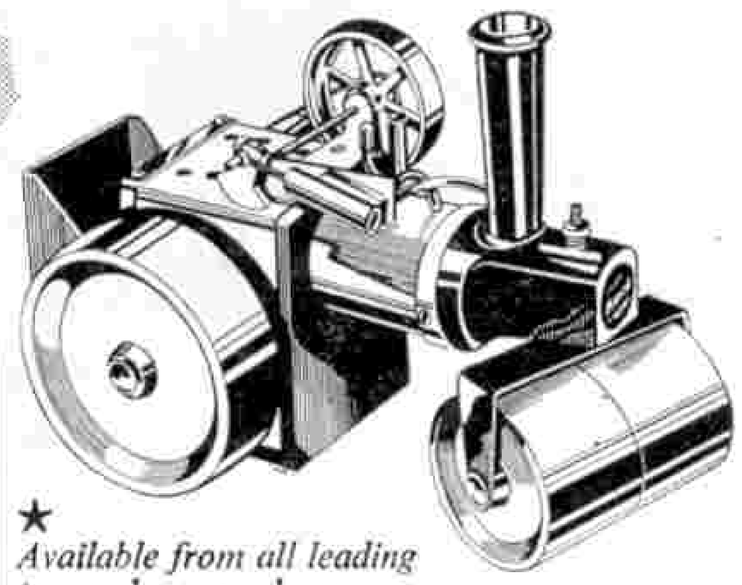
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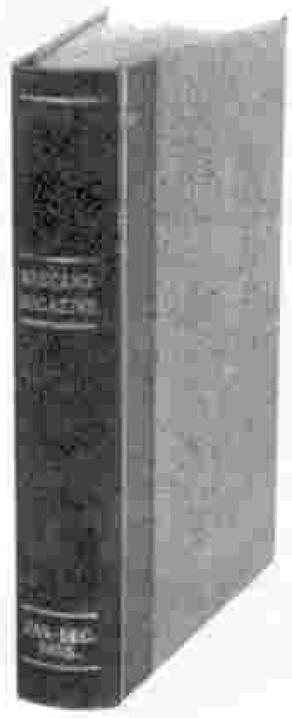
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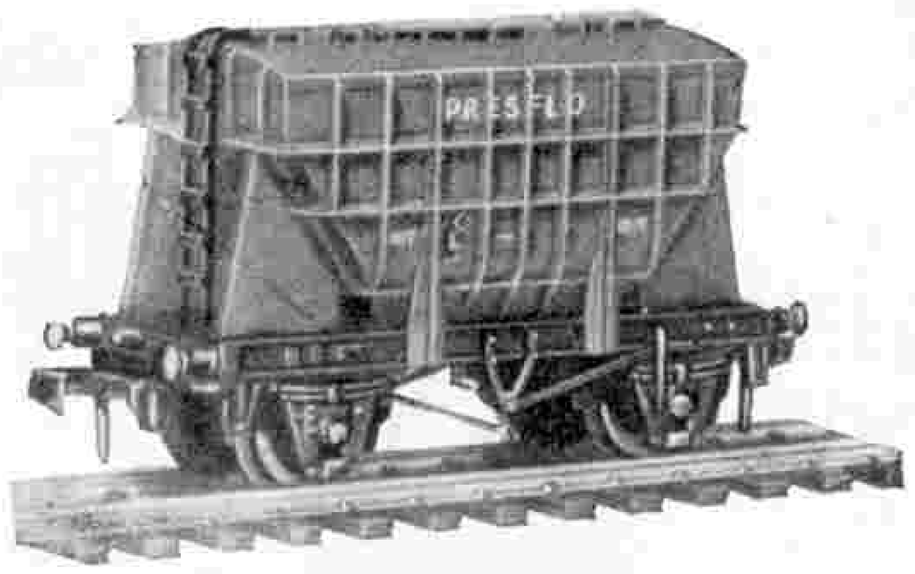
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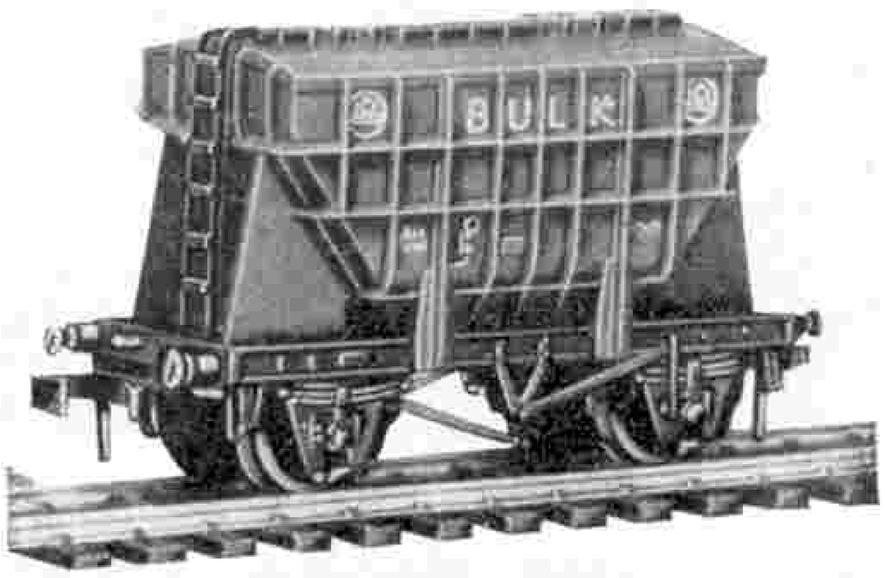
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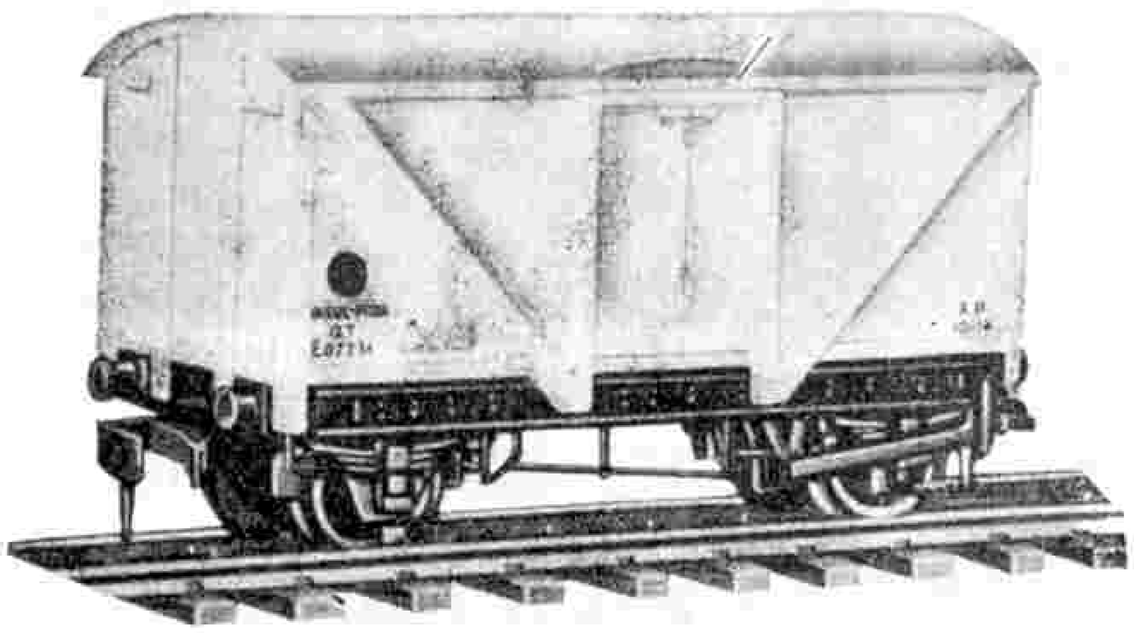
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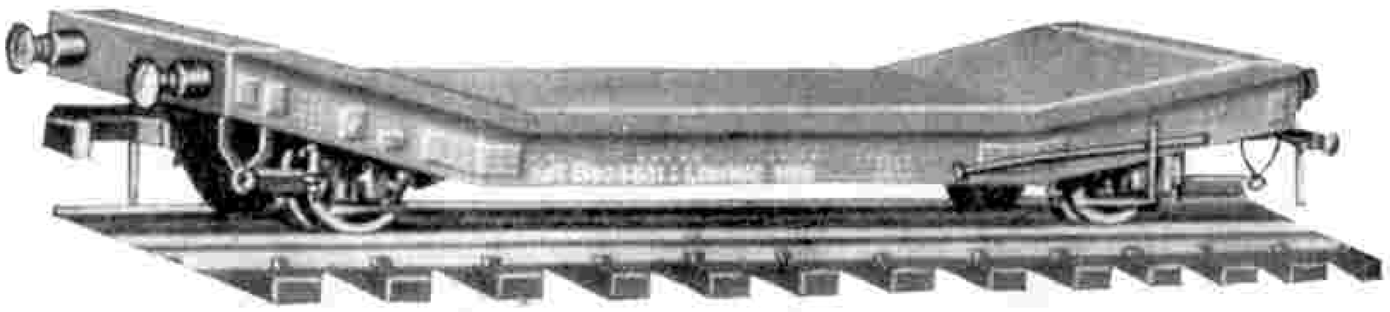
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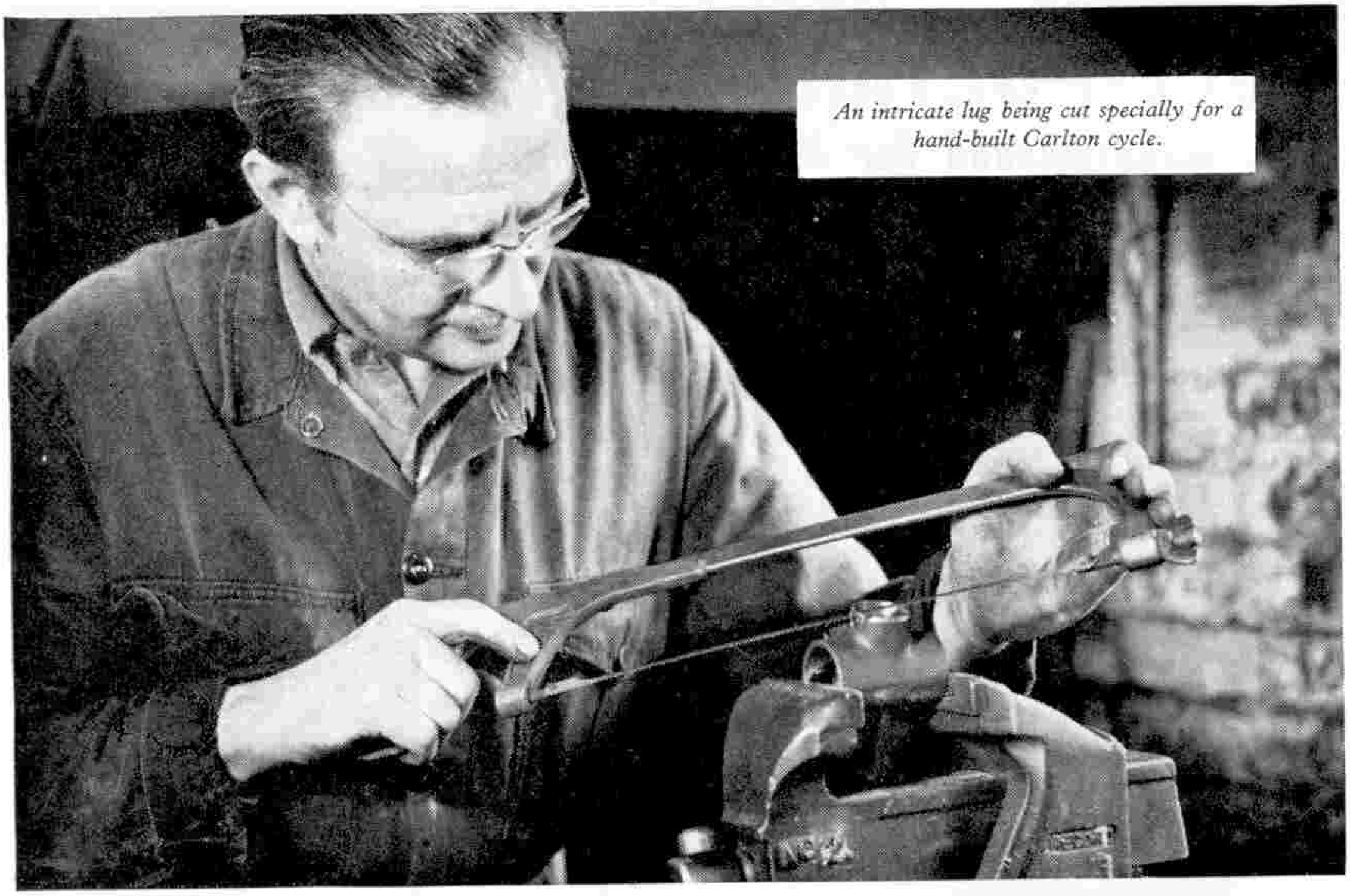
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MECCANO MAGAZINE

Volume XLVII **No. 3** **March 1962**

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Britain's Biggest Canoe

READERS will remember that in past Editorials I have emphasised the importance of the team spirit in all aspects of life. Our picture this month clearly illustrates what is meant by "pulling together"—a metaphor that stands good for making progress in life as well as for making headway in a canoe. The craft illustrated is the National C.8, Britain's biggest canoe, which was launched at Richmond, Surrey, a few weeks ago and introduced a new class of sport to our inland waterways. Requiring eight men at the paddle, and a helmsman, the canoe is 36 feet long with a beam of 3 ft. 1 in. Constructed to a German design, the craft has a hull which is moulded of resin-bonded mahogany veneers, and the keel, seat risers, stem and stern posts are all of Columbia pine. Although the builders, known as the C.8 Development Group, estimate that the money spent by them, and the value of the materials donated, totalled about £80 they consider that similar canoes could be built for as little as £50. Work on the canoe was begun in January 1960 by a Brentford instrument maker, Mr. Charles Renshaw, who was joined in the project by Mr. Peter Begent of Chiswick, a maintenance engineer, Mr. Frank Luzmore, a Richmond boat-building enthusiast now retired from business, and Mr. Ron Flowers, of Isleworth, who is a diesel fitter. The group have already aroused the interest of the Central Council of Physical Recreation in their craft, and it is their hope that this class of canoe will be taken up by youth training organisations all over Britain.

Changing the subject from outdoor to indoor activity I must thank the many readers who have written to express their delight at the advances in the Meccano system announced last month. You will find in this issue two sample pages from the new Books of Models, just to let you see what they are like, and illustrations of some of the intriguing new parts. I should emphasise that although the illustrations of the models are printed only in one colour, in the actual Books of Models they are enhanced by being overprinted in red. As "Spanner" tells you in explaining what the "new look" embraces, those who are interested in the latest Outfits should consult their Dealers for details of availability.

THE EDITOR

Next Month: THE PETERBOROUGH LIFT LOCK

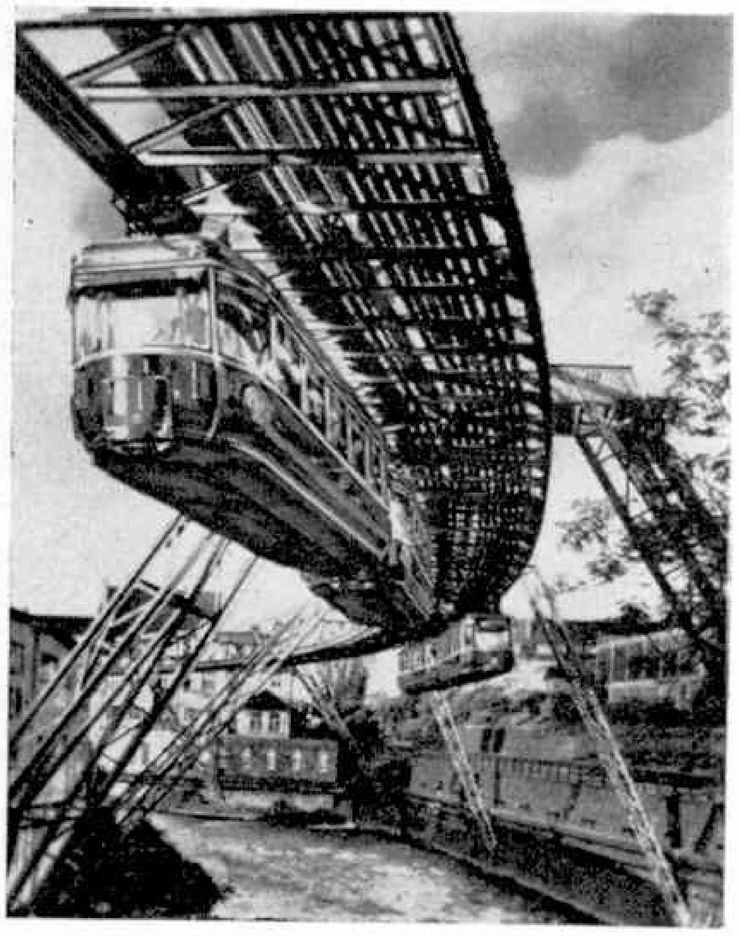
THIS MONTH'S CONTENTS INCLUDE—

	Page
POLICE DOGS ON PATROL .. By Arthur Turner	92
MY TWO RAILROADS .. .. By R. W. Bridgett	94
EYES IN THE NIGHT .. .. By I. Broadhead	98
MYSTERY OF THE *WARATAH* .. By L. Bruce Mayne	103
MECCANO'S NEW LOOK .. By "Spanner"	111
HORNBY-DUBLO LAYOUTS .. (Two-Rail and Three-Rail)	122

THIS MONTH'S COVER

This month's striking cover picture shows a scene on one of the most unusual railways in the world. This, known as the "Schwebebahn" is a monorail, built on the Langen system, which connects the cities of Barmen and Elberfeld in the industrial Rhur, Western Germany.

This unique railway was opened to its full extent as long ago as 1903, and is thus a veteran concern, but new rolling stock was built for it in recent times. The line, which handles a large volume of passenger traffic, is eight and a quarter miles long. An article giving many details of this interesting railway will appear in a subsequent edition of the M.M.



POLICE DOGS ON PATROL

BY ARTHUR TURNER

MAN'S four-footed friend, the dog, is today giving more and more help in detecting and preventing crime. In various parts of Britain such animals, after undergoing training, are serving the police and have already proved their worth in the unceasing war against lawbreakers.

Since the war, the Metropolitan Police have been fighting crime with thousands of men short of the number they actually need, and the employment of dogs has been one answer to the problem of inadequate manpower. County constabularies, too, are operating dog sections with increasing success and are steadily expanding this branch of their activities.



Alsatian and Labrador police dogs in their specially-equipped van which is used for transporting the dogs about their division. They are seen awaiting the command "Go!"

Each of the eighteen divisions of the Lancashire County Police Force is being provided with specially-trained dogs, and it is intended that about 90 will eventually be available in that area. Similar police dog establishments have been formed by other county constabularies and by a number of individual city police forces, such as those at Birmingham and Bradford.

Dogs were first used by the Metropolitan Police as far back as 1936, but there was no proper training and the experiment was abandoned. Then, in 1946, six Labradors were trained for three months and posted to various divisions. They did good service in greatly reducing some types of crime, such as handbag snatching, the number of recorded offences of that kind in Hyde Park alone being cut from 219 in 1948 to 46 in 1953.

The trained police dog, indeed, has many duties. Its main job is to detect and detain criminals, but it also does security work, assists in recovering property, and helps to prevent hooliganism. The very presence of such a dog, accompanied by a policeman, is a deterrent to crime.

Tracking wanted or missing persons, even over a trail left hours before, is another important feature of police dog work.

Nowadays, the Alsatian is the breed most favoured for police duties, but Labradors, too, are still used in some areas, and other breeds have been found satisfactory. The Dobermann is considered to rank high in this respect, and is employed by a number of police forces.

Labradors have been found excellent for protection duties, while the Alsatian is rather easier to train than the Dobermann and is ideal for general police work. It also undoubtedly has a greater psychological effect on the public.

The dogs to be trained may be bought from breeders or given by private owners, although today there is also a trend for police forces to breed more from their own kennels.

The Lancashire County Constabulary have recently undertaken to supply other police forces with dogs, and with this in view six Alsatians of exceptional qualities have been imported from Germany.

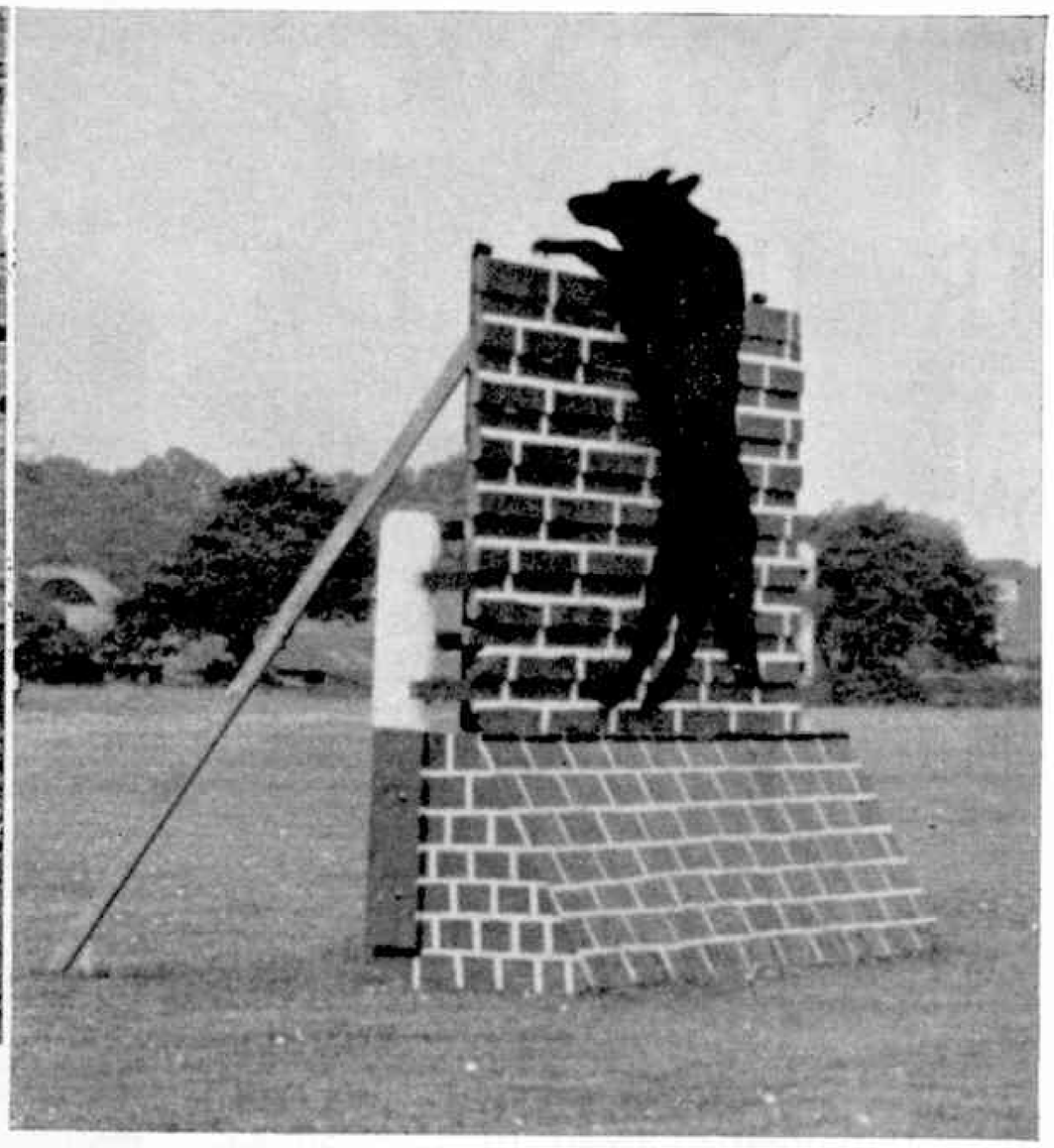
How are the dogs selected? Those chosen are well built, and courageous but not vicious. They must have a clean bill of health both in regard to themselves and their parents.

As soon as a puppy is eight weeks old,



The chase is on. With the aid of a police volunteer this dog simulates one of the most spectacular aspects of its work—learning how to detain a fleeing criminal. In such circumstances the dog must be under complete control by its handler.





Above: Teaching a dog to search for a hidden criminal. In this instance the handler is wearing a portable radio set which enables him to maintain contact with his station. Right: Police dogs must be able to surmount difficult hurdles and this one is being put through its paces at one of the several training schools now existing in Britain.

it is sent to be looked after by a prospective handler. In only a few cases (such as duties in Central London, where Labradors may be used by a number of police officers) is multi-handling adopted.

Learning to obey

The individual handler does not treat his dog as a family pet, but houses it in a kennel to which a run is attached. He looks after the puppy and gives it walking exercise until it is nine months old. It can then begin to learn to obey elementary commands, such as "Sit" and "Wait".

At the age of twelve months the dog starts a thirteen weeks' course at a training school run by the police before it enters its operational career of about eight years. Some police forces give prospective police dogs a short preliminary course in elementary duties, but no attempt is made to train them intensively until they are a year old.

Handlers are chosen with as much care as the dogs, for they have to be young, fit, keen, and fond of dogs. They also need a good knowledge of police procedure and duties.

Most police dog handlers are men who have had some experience with dogs and other animals. The Metropolitan Police employ as handlers men who were formerly dog breeders, gamekeepers, or shepherds before they began to wear the blue uniform of a London "Bobby".

The thirteen weeks' training includes lessons in obedience, tracking, searching, and recovering property, as well as detaining criminals. Perhaps the most important lesson to be learned is implicit obedience, for on many occasions the handler will have to leave his dog while he investigates incidents. He must, therefore, be able to rely on his dog staying where he has left it until he returns.

One of the final tests in the training course is for the handler to leave his dog in a certain place and then walk away until he is out of sight. The dog is expected to stay where he is for fifteen minutes, and each movement means the deduction of marks from the final score.

An ability to track well is an important requirement in a police dog, and this is one reason why Alsatians are favoured. The breed has a good nose for the scent, and the tracking skill can be increased by teaching the dog to concentrate on a particular scent for long periods.

To cause confusion

In their final tests at the training school the police dogs have to follow a track for two miles over open country and a half-mile trail in a built-up area. The scent may be two hours old and may have cross tracks to cause confusion, but the dog is expected to stick unerringly to the one it is already following. Articles left on the track have also to be recovered.

Searching for property is by no means an unimportant duty of the police dog. It is taught to search areas with its handler and find the smallest of objects, many of which would be extremely hard to locate by other means. The dog is trained to bark when it finds something it cannot retrieve, so that the handler can recover the object.

In practical police work this duty alone may save a lengthy and perhaps unsuccessful search by a whole squad of men. The training school tests include the finding and recovery of several articles thrown into the area by someone other than the handler several hours earlier.

Perhaps the most spectacular aspect of police dog training is learning to arrest criminals. In this work the dog must be under complete control by the handler, so that it will "hold" when ordered to do so, but will not bite indiscriminately. It is taught to arrest fleeing criminals, bringing them down and holding them until they are no longer aggressive, or until commanded to release them by the handler.

A trained police dog will pursue a running man as if to bring him down, but will hold the man in check when he stops running merely by walking round him.

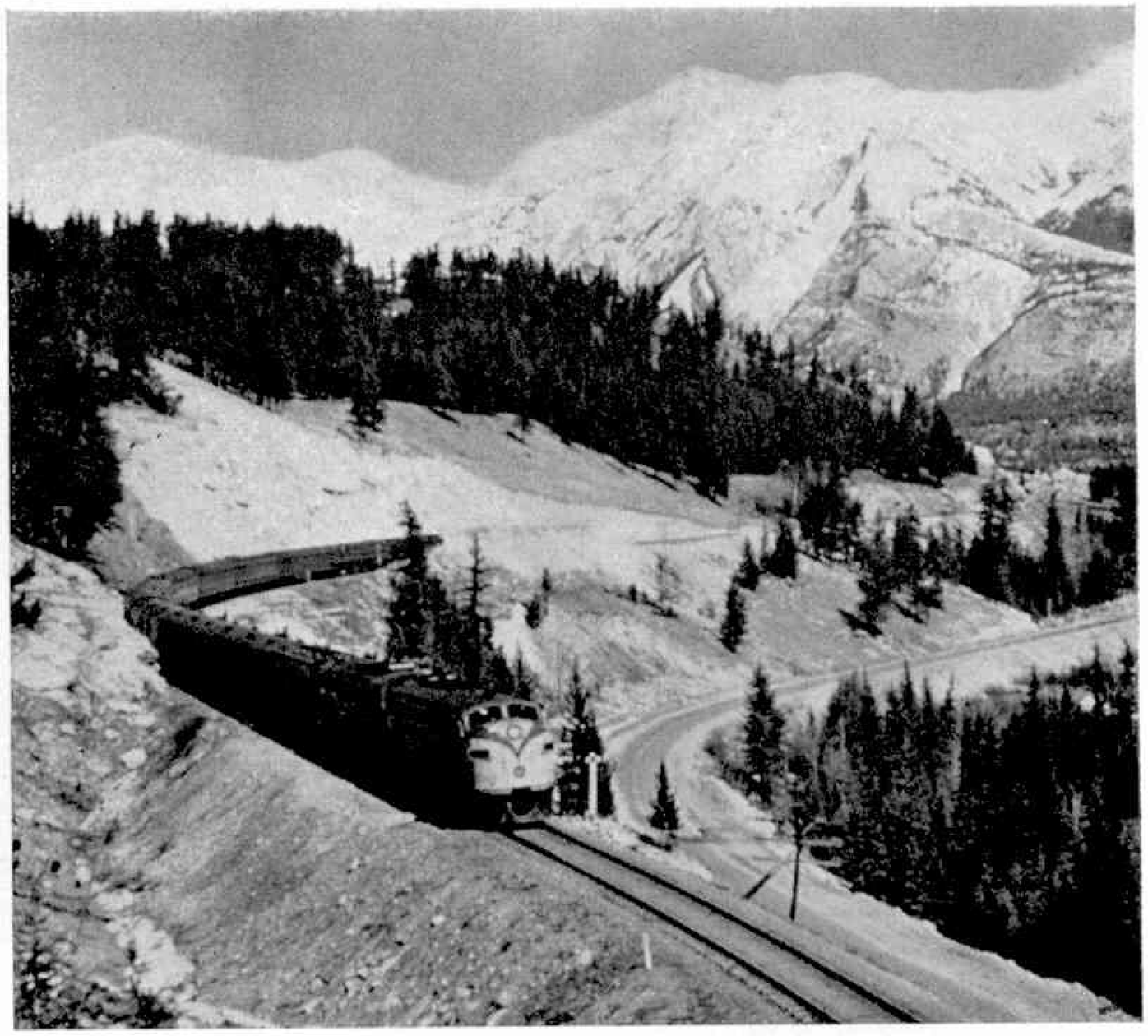
Yet, these animals must have courage, and without being too aggressive they must be wise enough to avoid injury to themselves. They are taught to defend themselves against a man who is armed with a gun or a stick. The dogs must not shirk when they are fired at, or threatened with any other weapon, but must wait for an opportunity to jump in and bring down the assailant.

Not until the dog has learned these various lessons thoroughly is it allowed to carry out operational tasks. It must be entirely reliable at all times, and must even be so well trained that it will adopt one attitude towards children and another towards adults.

Once the dog and handler have completed their course of training they are posted to an operational division. Instead of living in a central kennels, the animal may live with his handler.

In Lancashire, the county police allocate two dog handlers adjoining semi-detached houses with (*Cont. on page 132*)

MY TWO RAILROADS



A Canadian National train rounds a curve in a typical valley, with snow-capped peaks in the background. This picture, and the remaining photographs illustrating this article, appear by courtesy of Canadian National Railways.

ANY railroad is an achievement. It symbolises man's supremacy over nature and epitomises the pioneer spirit. In that respect I have been fortunate. Two railroads have been important in my life. The first gave me months of anguish; the other almost one week of indescribable delight.

"Once I built a railroad", is a line from a song of the Depression. In my case it is a true statement. Of course, there were others helping me! Taking part in its construction was not of my own choosing. I would have been perfectly happy to have remained unaware of its existence. However, time and circumstances conspired against me.

The spring of 1943 found me "somewhere in Thailand". As a prisoner of the Japanese, I became a railroad engineer.

—By—
R. W. BRIDGETT

Together with other British soldiers, Asiatics of every description, a few elephants and a swarm of irritable Japanese, I began my labours. We cut through the sides of mountains, boring holes for the explosives the hard way. It was all hammer work. Holes, a metre deep, took hours of monotonous striking under a boiling sun. When the charges had been fired, the clearing of the debris accounted for more weary hours.

Rivers had to be spanned; ramshackle wooden structures, the Oriental equivalent of bridges, sent their feelers across rivers swollen by the monsoon or crept crazily around sheer mountain sides. Cholera and other diseases did little to slow the progress of the "Railroad of Death." Every sleeper laid cost the life of a British or Australian soldier. Every bolt in the fishplates may well have accounted for a miserable coolie, transported from his native village to serve an apprenticeship at this alien trade.

* * * *

Somehow the railroad was completed and we, the remnant of those who had started the project, made our way back to Singapore. Back across those crazy bridges, across timbers we had sawn half way through to ensure that the railroad would not become a lasting possession of the Japanese.

Life became monotonous once more. We were transported to Japan and the railroad in Thailand became a memory. Except for being torpedoed by American submarines—after which we spent five days floating on wreckage in the Pacific—and witnessing the bursting of the second atomic bomb over Nagasaki, life, like the food, was dull. The war dragged to its end. And with that, "home" became once more a reality and not some mythical place in a never-never land.

Luck was on our side. After a Pacific cruise we reached our repatriation camp, just outside Victoria, on beautiful Vancouver Island. Here we stayed for some weeks. The crisp, wine-like air of a Canadian October cleansed our lungs, and thanks to the kindly treatment of our hosts our weight increased. From less than 100 lb. I reached over 160lb.

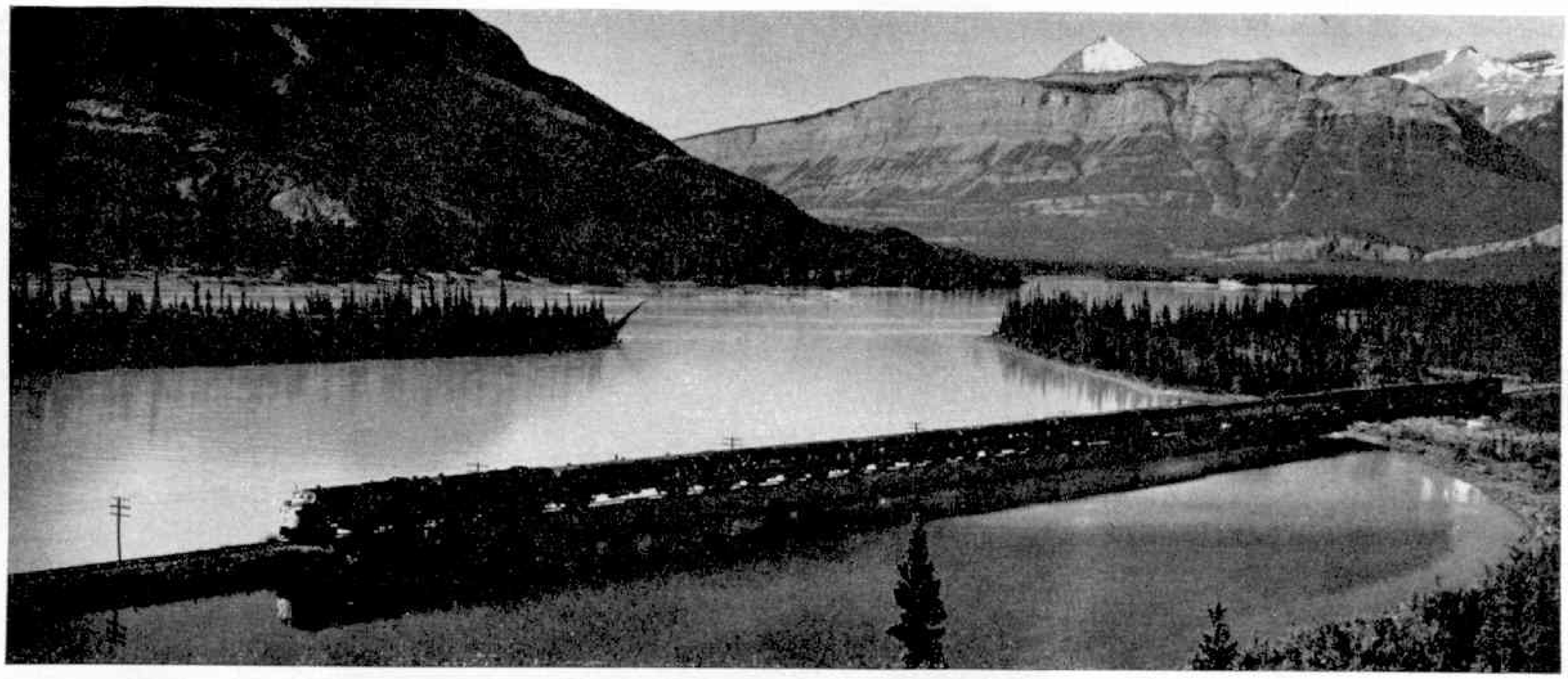
Then I met my second railroad . . .

The mighty locomotive pulled the coaches slowly and effortlessly out of Vancouver Station. It would be impossible to remember that route through the Canadian fairyland, but the flashes of odd incidents stand out like street lamps on a foggy night, leaving the other parts of the journey swathed in woolly mystery.

We savoured every mile of that journey, like connoisseurs tasting vintage wine, for



C.N.R's Ocean Limited, a diesel-hauled express, arrives at Moncton, New Brunswick.



A panoramic view of C.N.R.'s Super-Continental traversing an embankment across a lake near Jasper.

were we not railroad men; had we not built a railroad and made it run?

The unforgettable grandeur of the Rockies; the awe and majesty surrounding Mount Robson; the snow-capped peaks of other unknown mountains; each in turn thrilled the most material minded. Townships receded into the distance. The prairies beckoned us on, and we heeded their call; we were racing towards them.

Alongside the track, at odd intervals, we saw the decaying remnants of log cabins, remains of Canada's great history, as majestic and as expressive in their way as the mouldering piles of medieval monasteries and castles one finds scattered all over England. For those timbers spoke clearly of hardships conquered and battles against the elements won. The beaver was the magnet which drew men into that wasteland, to trap it for its fur. As we moved along I remembered a painting —perhaps it was in the Hudson Bay Company's store in Victoria—showing trappers and Indians shooting the rapids in a flimsy birch-bark canoe, loaded high with pelts. Strange, I thought, how a few logs of wood in crumbling disarray can stir the beholder's imagination and light up the history of a virile nation.

On then, across the prairies, metal miles sliding smoothly beneath steel wheels. Here one could almost see the ghostly herds of buffalo—herds that had roamed here before the railroad men of the nineteenth century had done the same job as we had.

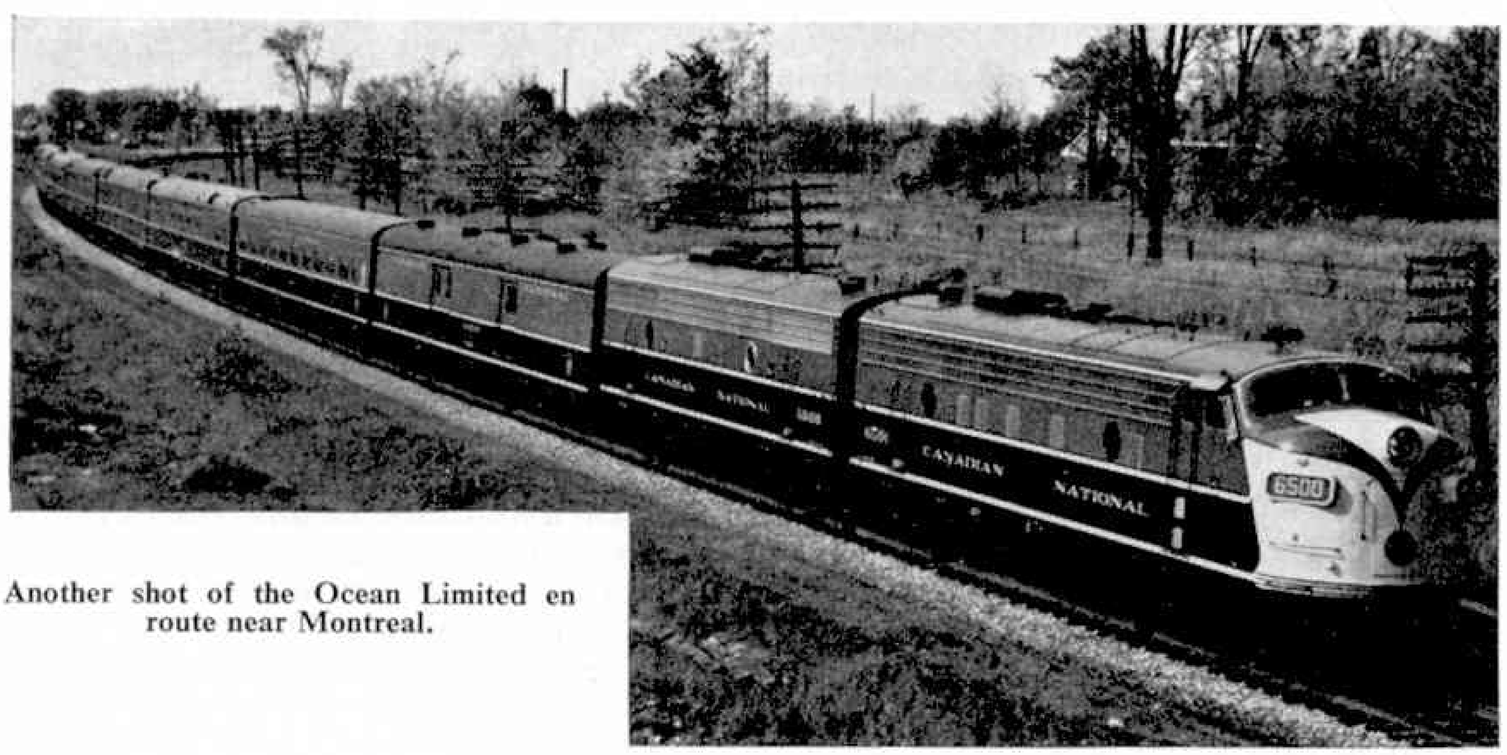
Unknown men had built this railroad over rivers; along the shores of lakes large enough to be called seas in Europe; across prairies flat and fertile; around, over, and even through the snow-covered Rockies. It was a girdle of metal encircling a continent—a belt of steel linking Atlantic with Pacific.

Toronto and Ottawa were reached and passed. To many Englishmen these are far-away places with strange-sounding names; but to the Canadian they are cities of which to be proud—nuge white cities, some of them arising out of the flatness of the wheat-producing areas. The train hits them with a suddenness which is breathtaking. There is no gradual "leading up", as in England.

I paid my farewell to Canada as the train crossed the wide St. Lawrence.

Is it surprising that today, in England, the sight or sound of a locomotive brings back memories of my two railroads—one railroad which I hated because of what it cost me and my friends; the other which I still love because it carried me through a friendly land, filled with gracious people, on a journey the climax of which was home?

Yet, I must never forget that it was the knowledge I gained on my first railroad that enabled me to appreciate fully the achievement, the splendour and, yes, the majesty of the Canadian National Railway. And it was also the bitterness of three and a half years of ill-treatment and misery which made the taste of the free air of "God's Own Country" so intoxicating and lasting.



Another shot of the Ocean Limited en route near Montreal.

BRITISH MOTORISTS' BIGGEST MILEAGE

British motorists, motor-cyclists and scooterists clocked their biggest mileage ever during 1961, the Royal Automobile Club announced recently. Routes, home and abroad, issued to R.A.C. members alone totalled nearly 190 million miles, almost 20,000,000 miles more than in the previous best years of 1960 and 1959.

The R.A.C. issued 70,000,000 miles of foreign routes during the year and handled 165,000 requests for documents and shipping and air bookings—nearly 30,000 more than in the previous year.

There was a sharp increase in the number of foreigners visiting Britain by car. The R.A.C. Port Offices helped 29,324 foreign visitors, an increase of 31 per cent. over 1960.

The R.A.C. has opened a Northern Home Counties Office in St. Alban's Road, Watford (Herts) to meet the ever-increasing demand for its services in Essex, Middlesex, Hertfordshire and other areas north of the Thames. There are now 23 R.A.C. main offices throughout the country, others recently opened being at Croydon and Plymouth.

SPACE NOTES

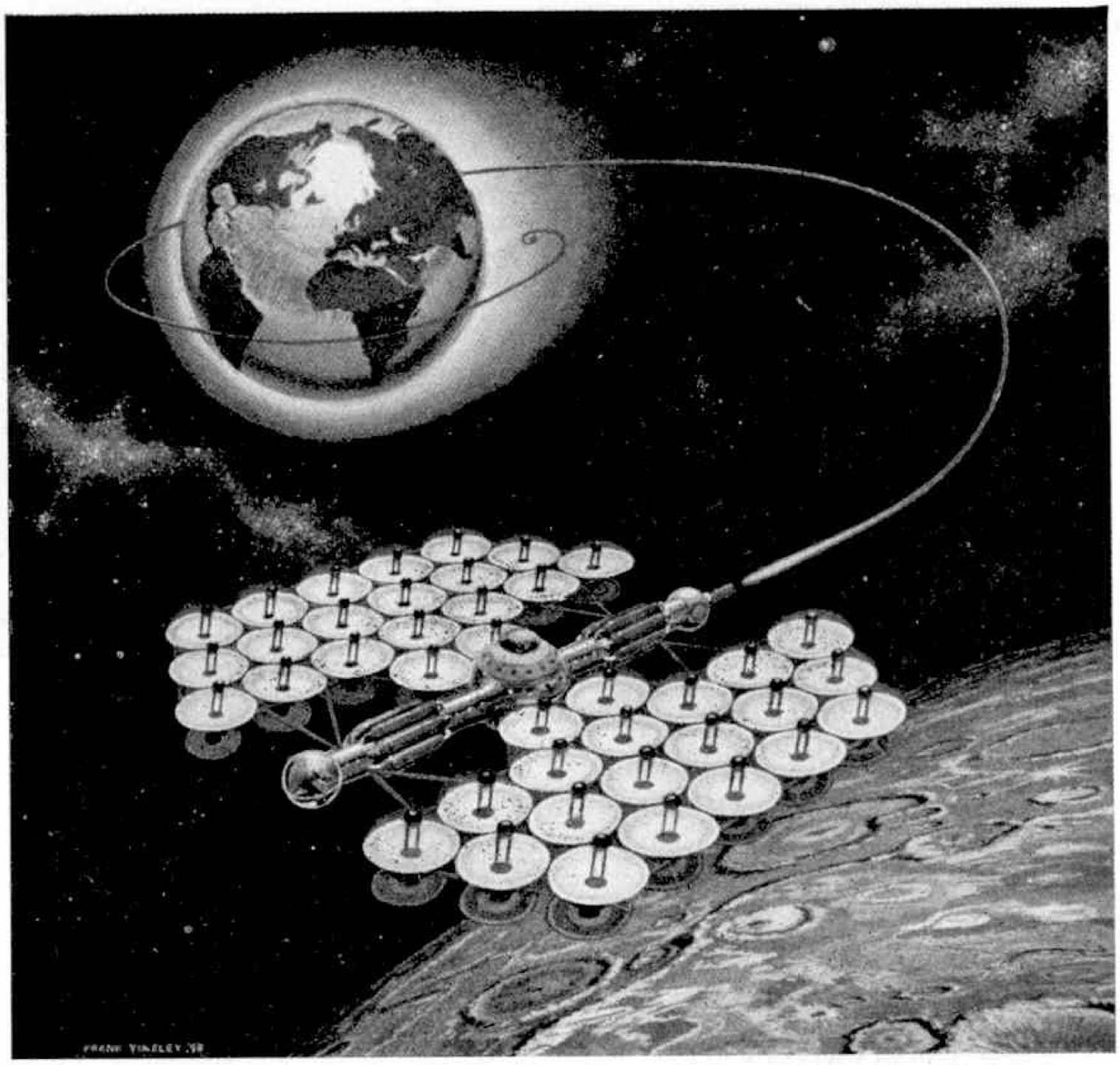
INTRODUCING THE "COSMIC BUTTERFLY"

By
J. HUMPHRIES, B.Sc. (Eng.),
A.M.I.Mech.E., A.F.R.Ae.S.

THE first artificial satellites carried little equipment and small, low-powered transmitters. It was a great triumph to get them into orbit at all, and a few days, or even hours, of data transmitted back to Earth was scientific treasure. They were powered by batteries, and when these ran out the satellites became lifeless hulks.

Most of the later satellites, launched during the past two years, have derived their electrical power directly from the Sun via "solar cells"—thermo-electric devices which convert sunlight directly into electrical power. These cells produce about 2 watts for each pound of weight at an efficiency of perhaps 15 per cent. With, say, a 1,000 lb. satellite perhaps 50 lb. could be allowed for solar cells, giving a maximum electrical output of 100 watts. The cells are usually mounted on "paddles" which can be extended when the satellite is in space and the cells kept pointing toward the Sun.

An obvious snag with this scheme is that when the satellite enters the Earth's shadow, the power supply immediately disappears. This problem can be got round by installing an excess of solar cells and storing the power in secondary batteries, but this, of course, increases the dead weight, and a great need at the moment is a light-weight secondary cell.



The "Cosmic Butterfly", a design for a solar-powered, man-carrying space vehicle. (Illustration by courtesy of Bosch-Arma & F. Tinsley.)

Fifteen per cent. is not a very high conversion efficiency, and for high powers, such as might be required in manned space ships, it may be better to use the heat to run a turbo-generator system.

We are now accustomed to seeing some very odd schemes for space vehicles, but the "cosmic butterfly" shown in our first illustration this month must be one of the oddest to date. Each of the fifty-foot parabolic mirrors in the wings concentrates the Sun's rays on a boiler at its focal point, and steam is developed which drives a 200 kw turbo-generator in the base. Cooled by radiation to outer space, the steam condenses to water and is pumped back to the boiler to be used over again.

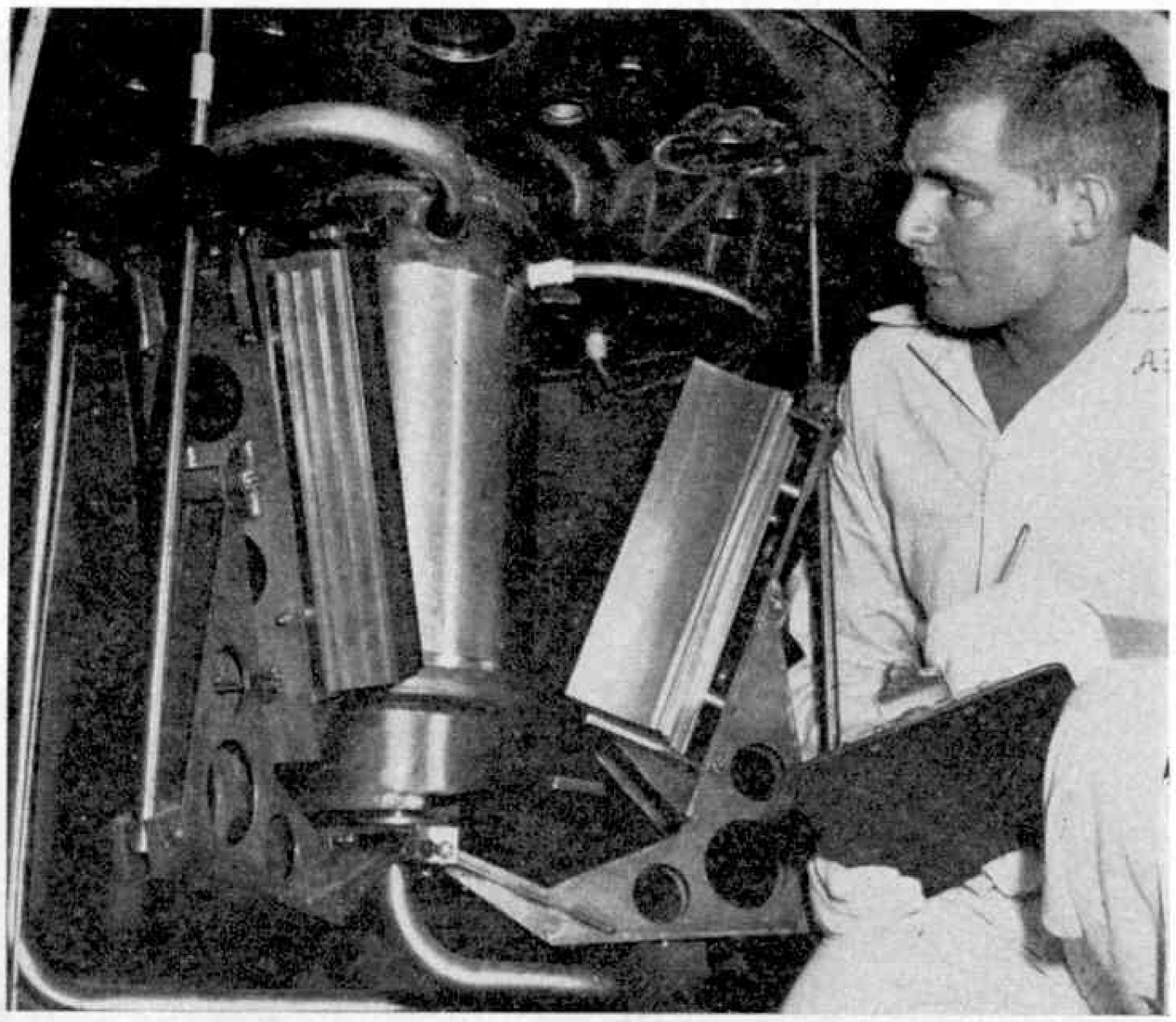
The current thus generated supplies power for auxiliary purposes as well as for the main propulsion unit. This "cosmic butterfly" is an ion rocket in which powerful electric fields accelerate charged cesium particles, shooting them from the rear of the rocket exactly as the electron gun in a TV tube bombards the screen.

While the thrust is relatively small, the weightless vehicle is operating in a vacuum, and this is sufficient to enable the space ship to reach interplanetary speeds. Unlike conventional rockets, the "Butterfly" is under power the entire trip. Half-way to its destination it turns around, and the ion thrust is used to slow the craft down to arrival speeds. Since its thrust is entirely inadequate to cope with the gravity of planets, the "Butterfly" never lands. It is assembled in space and shuttles between artificial satellites. The vehicle could carry ten passengers and 50 tons of cargo from an Earth satellite to a Martian satellite in about one year of continuous travel.

FIRST OF ITS KIND

Another source of long-term high-power electrical energy is the nuclear reactor. SNAP 2 (the initials stand for Systems for Nuclear Auxiliary Power) is the first practical application of this type of power supply for space use, and has been developed by Atomics International.

This unit utilises a 200 lb. reactor, which is about the size of a 5-gallon oil drum. The final system will operate unattended in space and provide 3 kw of electricity



Illustrated here is SNAP 2—a 3 kw nuclear power supply for space. (Picture: Atomics International).

with an unshielded weight of 600 lb. Shielding necessary to protect transistorised circuits from harmful radiation would add another 300 lb., and for use in a manned space-ship the all-up weight would rise to about a ton.

The reactor core contains 61 cylindrical fuel elements of enriched uranium alloyed with zirconium hydride. The nuclear reaction taking place in this core delivers 50 kw of thermal energy to liquid sodium which passes through the core. The liquid sodium then passes through a boiler containing mercury, which vaporises and drives a small turbo-generator.

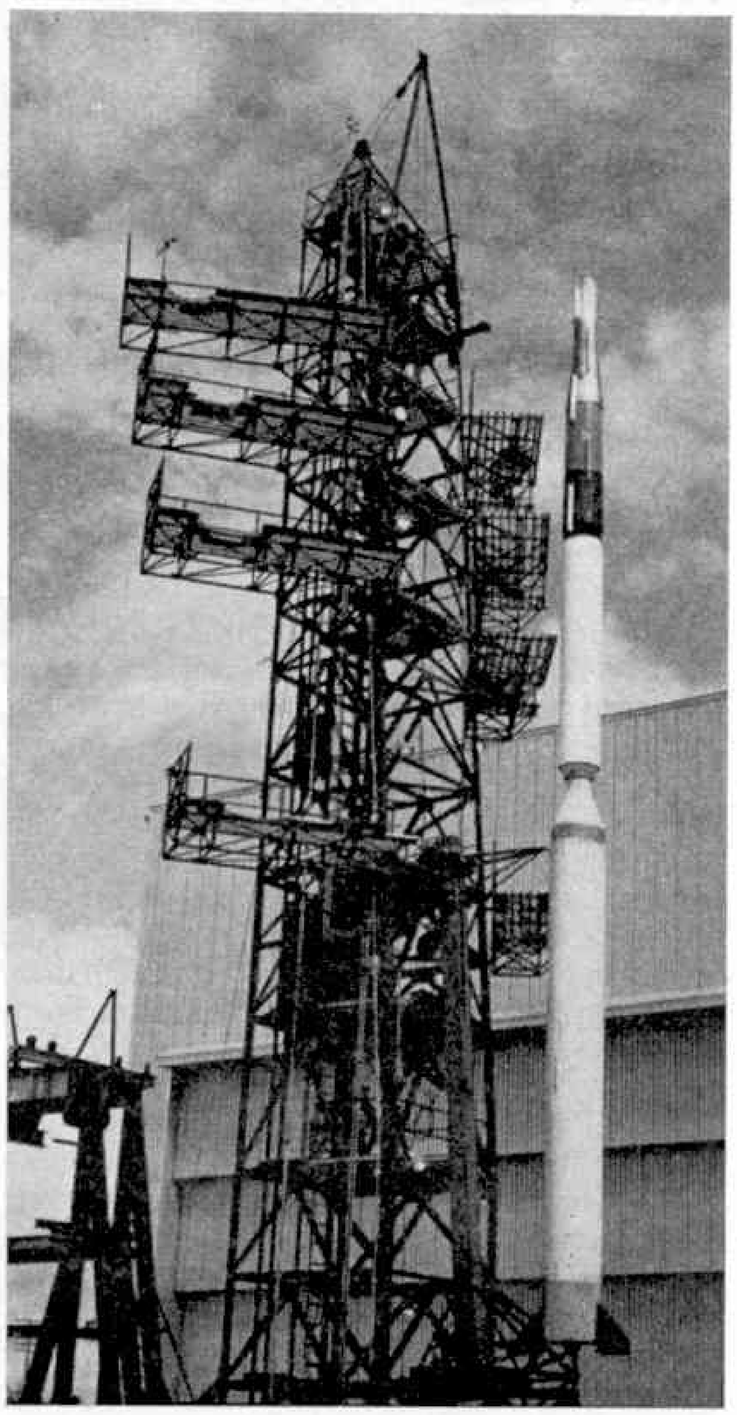
One of the advantages of SNAP 2 is that it can be stepped up from 3 to 30 kw with very little change in size or weight, and even up to 300 kw with little change in size and none at all in the basic design. The unit is comparatively cheap, will withstand severe shocks, vibrations and temperature changes associated with the launch and will not constitute a hazard to ground personnel.

When SNAP 2 goes to work, one of its first jobs will be the powering of space stations and vehicles for deep space probes. The 30 kw version should also be able to provide power for a small ion propulsion system. It could, for example, push a satellite already in a 300 mile altitude orbit out to 2,000 miles. A 300 kw unit would give sufficient thrust to take a vehicle to Mars.

SCOUT DEVELOPMENT

The Scout vehicle was to have been used to launch the British satellite UK–1. Unfortunately, it has not yet been fully developed and UK–1, which will be ready at the end of March, will be launched in the nose of a Thor-Delta rocket.

The experiments carried out are intended to measure the electrification of the atmosphere at altitudes up to 1,000 miles,



The Scout research rocket, mounted in its 109 ft. launcher in a vertical position, can be fired straight upwards or at an angle. The rocket in this picture is the structural test vehicle which is without fairing between the first and second stages. (Photograph by courtesy of Chance Vought Aircraft.)

to study the "heavy" cosmic rays which come from outer space, and to examine those components of sunlight (in the ultra-violet region) which are stopped by the atmosphere before they reach the ground.

Work on Scout is proceeding, of course, and it is interesting to note that the fourth stage of this vehicle uses more than 100 square feet of gold plating. Vought, the designers of Scout, applied a highly emissive ceramic coating externally to the rocket's skin to radiate friction heat back into the atmosphere. On the inside, the low emissive gold coating was used to reduce heat radiation to the payload. This plating is only 0·00001 of an inch thick and costs only 5/– a square foot to apply.

"BRISTOL IN THE 1940's"

by Reece Winstone

Older readers of the *Meccano Magazine* will recall the air raids on this country during the second world war, and to those living in the Bristol area this addition to Mr. Winstone's pictorial history of that city will bring back vivid memories of the terrific onslaught by German raiders in the early 1940's.

The scores of fascinating photographs reproduced in this book are both a striking pictorial record of the damage sustained by the city and a reminder of the valuable part played by the ordinary citizens of Bristol during the war. In addition to the excellent descriptive captions which are an important feature of these Bristol handbooks there are three accounts of the air raids on the city. *Bristol in the 1940's* is published by the author and can be obtained from him at 23 Hyland Grove, Bristol 9, price 11/6 in laminated covers or 19/– cloth bound, or post free for 12/3 or 20/– respectively.

RECORD YEAR FOR THE A.A.

Every 55 seconds of the day and night throughout 1961 an A.A. member somewhere in Great Britain received assistance under the Association's Free Breakdown Service. Figures provided by the A.A. show that the record number of 568,400 members called upon the service during the year. Help was given either direct by A.A. radio-controlled vehicles (227,800 cases) or by breakdown vehicles sent out by garages at the Association's request (205,600). The remaining 135,000 members applied direct to garages for help under the terms of the scheme.

An A.A. spokesman said "This record total represents an increase of 13.25 per cent. over the 1960 figure and means that more than one in every five of the total A.A. membership was assisted in time of trouble. These cases do not include the many thousands of occasions during the year when help was given at the roadside by passing patrols or patrols operating from Patrol Service Centres."

EYES IN THE NIGHT

● Through dark and wintry weather, and through the hazards of fog, the modern motorist has an invaluable aid unknown to his predecessors—the cat's eye road studs, scintillating sentinels that guide him on his way. This article tells how they came to be accepted as an important aspect of modern road safety methods.



The brilliance of these reflecting lenses, which are being sorted before being installed in the rubber cups of the cat's eyes, makes this picture seem more appropriate to a jeweller's shop than a factory. Central Office of Information photograph: Crown Copyright reserved.

AS long as there is a road beneath him, the motorist is said to be in contact with town and city no matter how far distant they may be. Roads are taken for granted; the driver asks only that they shall enable him to reach his destination as swiftly and safely as possible without intruding upon his attention more than necessary.

Taken for granted too, like directional and warning signs and other important items of road "furniture" are the cat's eye reflecting road studs which line our main roads. They direct the night driver on his correct route, denote traffic lane divisions, indicate danger spots and, in foggy weather, provide an indispensable guide. Yet, although they are so much a part of our everyday life, they are only a comparatively recent innovation.

The story of many a famous invention is bound up with some simple circumstance or observation, and the invention of the cat's eye is no exception.

Reflection from track

On a dark, foggy night in 1933 a Mr. Percy Shaw was returning by car to his home in Halifax, Yorkshire. He had great difficulty in finding his way until he reached the tramlines on the outskirts of the town, after which he had no further trouble.

He subsequently observed that on a foggy night the light of his car headlamps created a halo effect, but the slight reflection from the tram track penetrated the fog and provided an adequate guide. Mr. Shaw realised that highway officials would be outraged if he suggested that they should provide tramlines along all the roads he used, and so, being of an inventive disposition, he sought a suitable alternative.

First he acquired the Old Boothtown Mansion—a wealthy cloth merchant's house built in 1769—where he devoted himself to the production of the prototype stud. After much trial and error he succeeded, and in 1935 formed a private

By

I. BROADHEAD

company known as Reflecting Roadstuds Ltd. The factory space at this time covered two acres; today, the firm has expanded to cover almost sixteen acres, which is a distinct measure of the stud's success.

After months of work in trying to persuade surveyors to visualise what the effect of the cat's eye would be, and to give an order on the strength of their vision, the firm finally obtained permission from the West Riding County Council's Surveyor to put down, at their own expense, a small trial stretch on a main highway not far from Halifax.

So, in July 1935, the component parts of the studs were made by sub-contractors and the final product was assembled in the stables of the Old Mansion.

The cat's eye took the form then, as it does today, of a cast iron well weighing about ten pounds which is sunk into the surface of the road. Inside this well is anchored a pad of highly resilient durable rubber, reinforced with canvas. Set in pairs on opposite sides of the pad are the cat's eyes. These reflecting lenses, made of special glass, are each mounted in a rubber cup and hermetically sealed into a copper container.

The assertion that cats can see better at night is a fallacy. But it is true that in the dusk cats can see better than men, for their eyes are sensitive to ultra-violet rays and in addition they are capable of enlarging their pupils, thus accepting all available light.

Experiments, so we are told, show that cats are colour-blind, seeing everything as a greyish-black, and this would also tend to improve their sight under adverse conditions. Whatever the reason, it is undeniable that the big, wide-set eyes of the cat are directed straight ahead, and in just the same way the special impact and abrasion-resisting glass reflectors of the roadstud accept and reflect each beam of a vehicle's lights. It is this similarity which earned them the descriptive title of "cat's eyes".

Automatic wiper

When a pneumatic-tyred vehicle passes over the stud, the centre portion of the rubber pad containing the lenses is depressed into the iron well. In the process of depression and rebound the lenses come in contact with the stationary rubber walls which act as an automatic wiper, cleaning away dirt and mud. This method of depression also prevents damage to the rubber pads and lenses.

To return to the purely historical aspect

of this invention, the trial stretch of road near Halifax was duly paved with cat's eyes and formed a showpiece to which many surveyors were taken. It proved to be a sound investment, and during 1936 a circle of customers within a 50-mile radius of Halifax came into being. The circle grew and grew until at length public demand brought the cat's eye stud to the notice of the Minister of Transport.

At this time studs with a reflecting medium were in use in France and America, and possibly in other countries. These studs were of the solid type, consisting of a metal or composition block having reflectors inserted into them, but such reflectors could fracture under the burden of traffic.

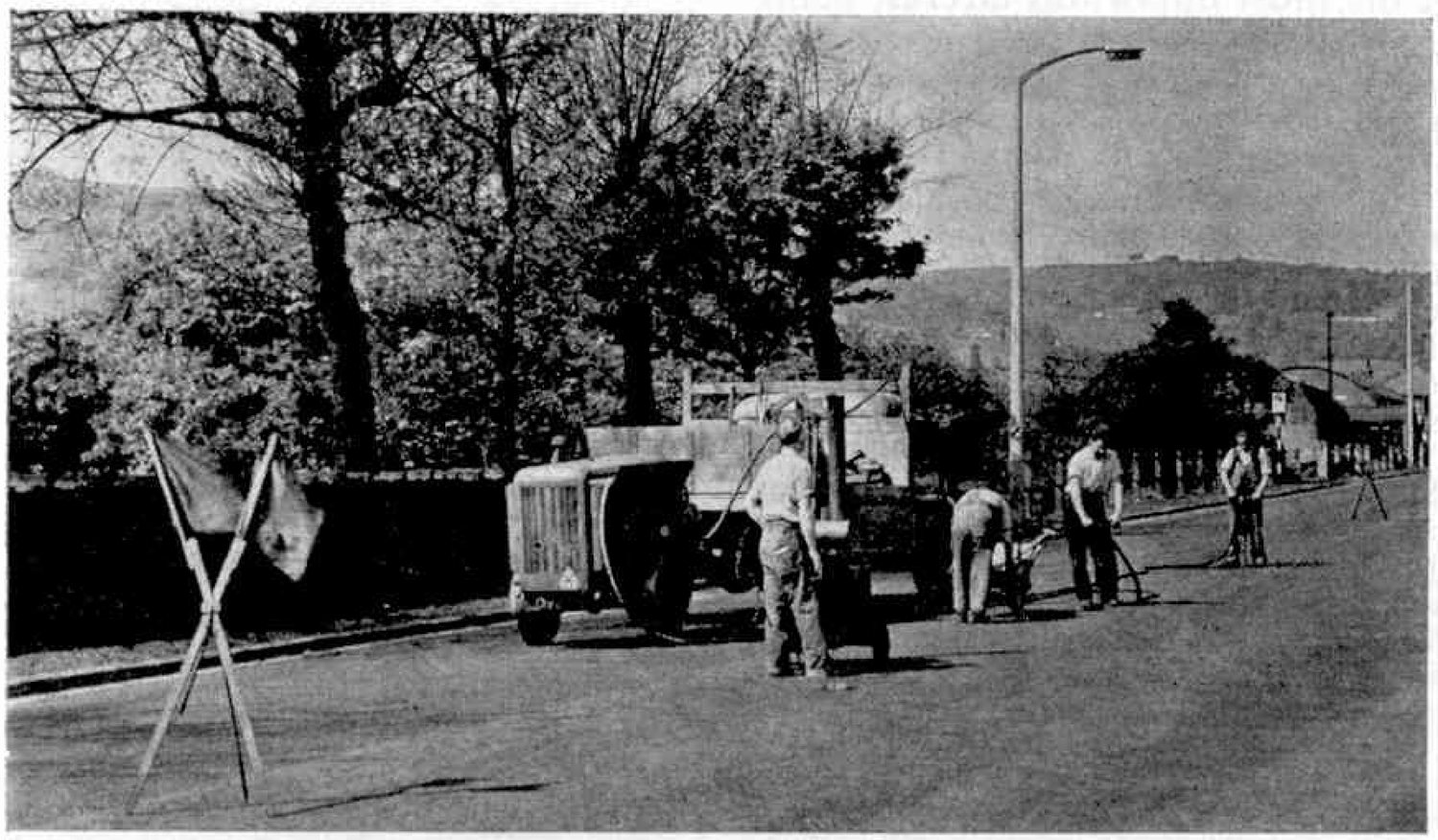
In 1937, the Minister of Transport decided to enlist the help of the Oxfordshire County Council in experimenting with various types of stud. A section of a busy highway some five miles long was set aside for the experiment and into this section were set sample lengths of studs, consisting of 100 studs in each length. More than ten varieties of reflecting studs were used, including cat's eyes. Within two years the reflectors in all other types had come out, had been fractured, or had ceased to reflect. In some cases the stud itself had broken—but the cat's eyes were in perfect condition.

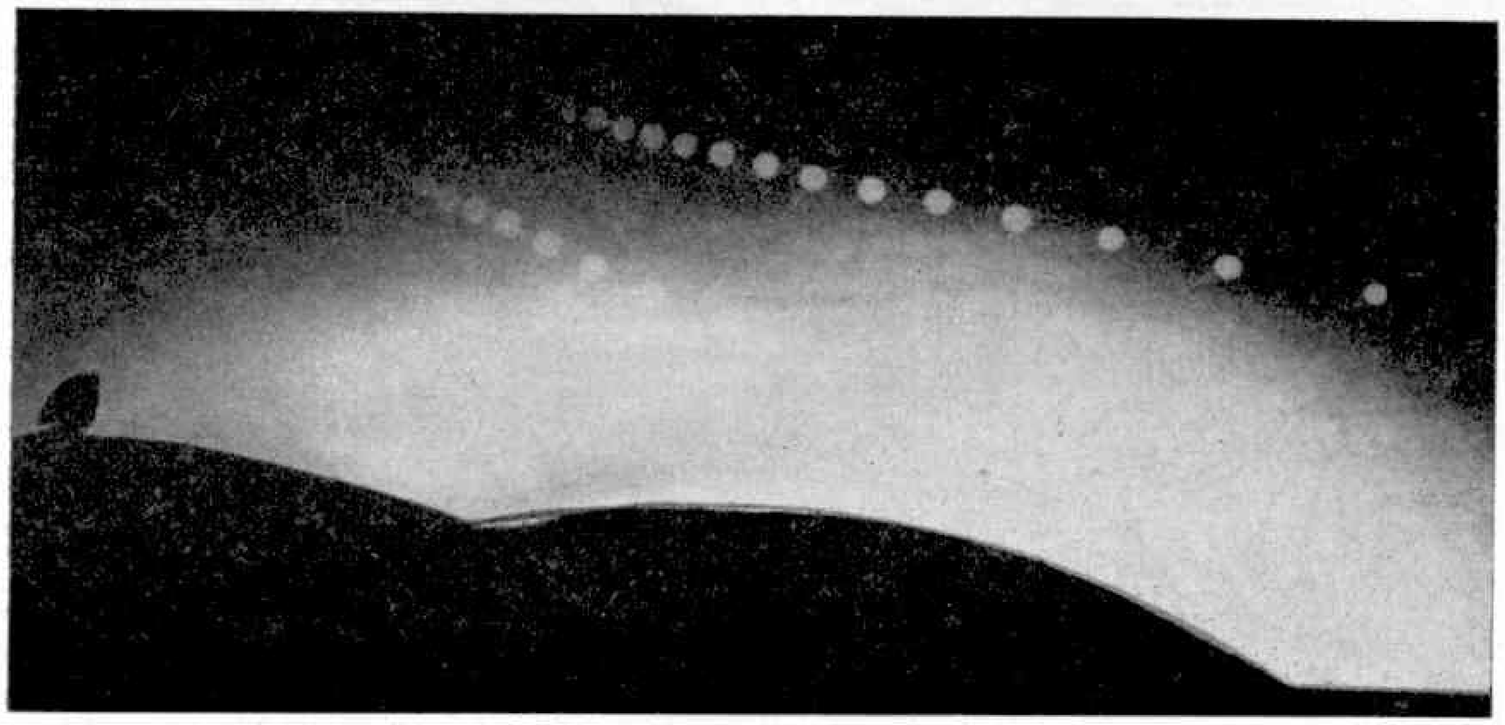
A blackout guide

In 1941 cat's eyes were acknowledged as an essential wartime blackout guide and production was increased. Three years later, the Minister of Transport gave approval to the adoption of cat's eyes and from that point onwards they have been widely adopted both at home and abroad. Extensive use of them is made in Eire, Holland, Germany, and many other countries. The six-lane highway over Sidney Harbour Bridge in Australia, and Route Nationale No. 113, claimed to be the busiest road in the South of France, are other examples of the cat's eyes' success.

In Britain, more than half the English counties have 90 per cent., or over, of their trunk and Class 1 roads marked with studs, and from 20 to 90 per cent. of the remainder. Altogether about 25,000 miles of road are paved with 5,000,000 cat's eye roadstuds which safeguard the free movement of traffic through darkness or fog.

Below: A typical scene on a main road where workmen are installing cat's eye road studs. Bottom picture: In fog a vehicle's headlights can pick out the cat's eye road studs which clearly indicate the way ahead.





A New Tanker Control Centre

Plans are now being implemented for a Marine Control Centre which, it is hoped, will provide a focal point for communication to and from tankers manœuvring in the Thames between Southend and any of the berths on the Essex side of the river up to Thames Haven. The Marine Control Centre will be built and operated by London and Thames Haven Oil Wharves Ltd. (Lathol).

It has been clear for some time that, with the increase in the number and size of tankers using the Port of London, efficiency could be improved if a reliable system of communication could be evolved. This would allow vessels to obtain information on the state of congestion of the port, availability of tugs, and up-to-date berthing instructions. Shell Tankers have a private V.H.F. radio transmitter at Shell Haven which has proved very useful for direct communication with tankers owned by the Royal Dutch—Shell group of companies. Really efficient services, however, must cover all ships, and there has been international agreement as to V.H.F. frequencies which should be used.

The Port of London Authority has already evolved a Port Information Centre at Gravesend, and reports are passed to all ships moving in its waters, so that masters and pilots have reliable and up-to-date news. This information centre has radar coverage down to the Gravesend Reach, and the Lathol tanker Port Information Centre will have similar coverage as far as Southend. The two centres will be connected by direct land line.

TRANSVERSE PROPULSION

Vickers-Armstrongs (Engineers) Limited have obtained orders from two shipyards for the supply of transverse propulsion units. Alexander Stephen & Sons Limited, Glasgow, are installing a Vickers unit to develop six tons thrust in a 7,000 tons twin-screw cross-Channel passenger steamer they are building for the British Transport Commission.

Simons-Lobnitz Limited, Renfrew, have ordered a Vickers unit to develop two tons thrust for a suction dredger they are constructing for the Blyth Harbour Commissioners.

The first transverse propulsion units designed and built by Vickers were installed in the P. & O. Orient liner *Oriana*. World-wide interest has been shown in these units, which make it possible to move a ship sideways when manœuvring in small harbours or in conditions of cross wind or heavy current.

Vickers have now produced a standard range of equipment, in four sizes, suitable for building into new ships, or for fitting into an existing vessel when undergoing a refit.



A broadside view of the de Havilland Trident.

The Trident—Britain's First Rear-Engined Jetliner

THE new Trident jetliner, which flew for the first time on January 9, and is built by de Havilland's, is one of the most important aircraft being built in Britain today. It is named after the three-pronged spear which you can see, held by the figure of Britannia, on a penny; and the name is well-chosen, as the Trident has three engines.

Designers have claimed for years that the ideal number of engines for an airliner is three. In this case, there are two 9,850 lb. thrust Rolls-Royce Spey turbofan engines mounted in pods on the sides of the rear fuselage, and a third Spey inside the fuselage, supplied with air by an intake forward of the tail-fin. They give the Trident a maximum cruising speed of over 600 m.p.h. and enable it to operate from small airfields with runways no more than 6,000 feet long.

This is important, because 60 per cent. of the world's passenger services are flown on routes less than 1,000 miles long, often in places where there are no runways long enough for jets like the Boeing 707 and Douglas DC–8. The Trident can carry up to 100 passengers on such routes, at an operating cost of less than a penny a mile per person.

AIR NEWS

By

John W. R. Taylor

B.E.A. has ordered 24 Tridents at a cost of nearly £30,000,000. The first of these is expected to be delivered towards the end of next year and to enter service early in 1964. By 1966–67, Tridents will be used on more than half of B.E.A.'s passenger services.

Incidentally, mention of the Trident's Spey engines prompts me to ask whether *M.M.* readers have noticed that all jet and turboprop engines built by Rolls-Royce are named after rivers in the United Kingdom. The first of these engines, back in 1943, was the Welland, based on the original Whittle turbojet. Since then we have had the Derwent, Nene, Tay, Avon and Soar turbojets, the Conway and Spey turbofans, and the Trent, Clyde, Dart and Tyne turboprops.

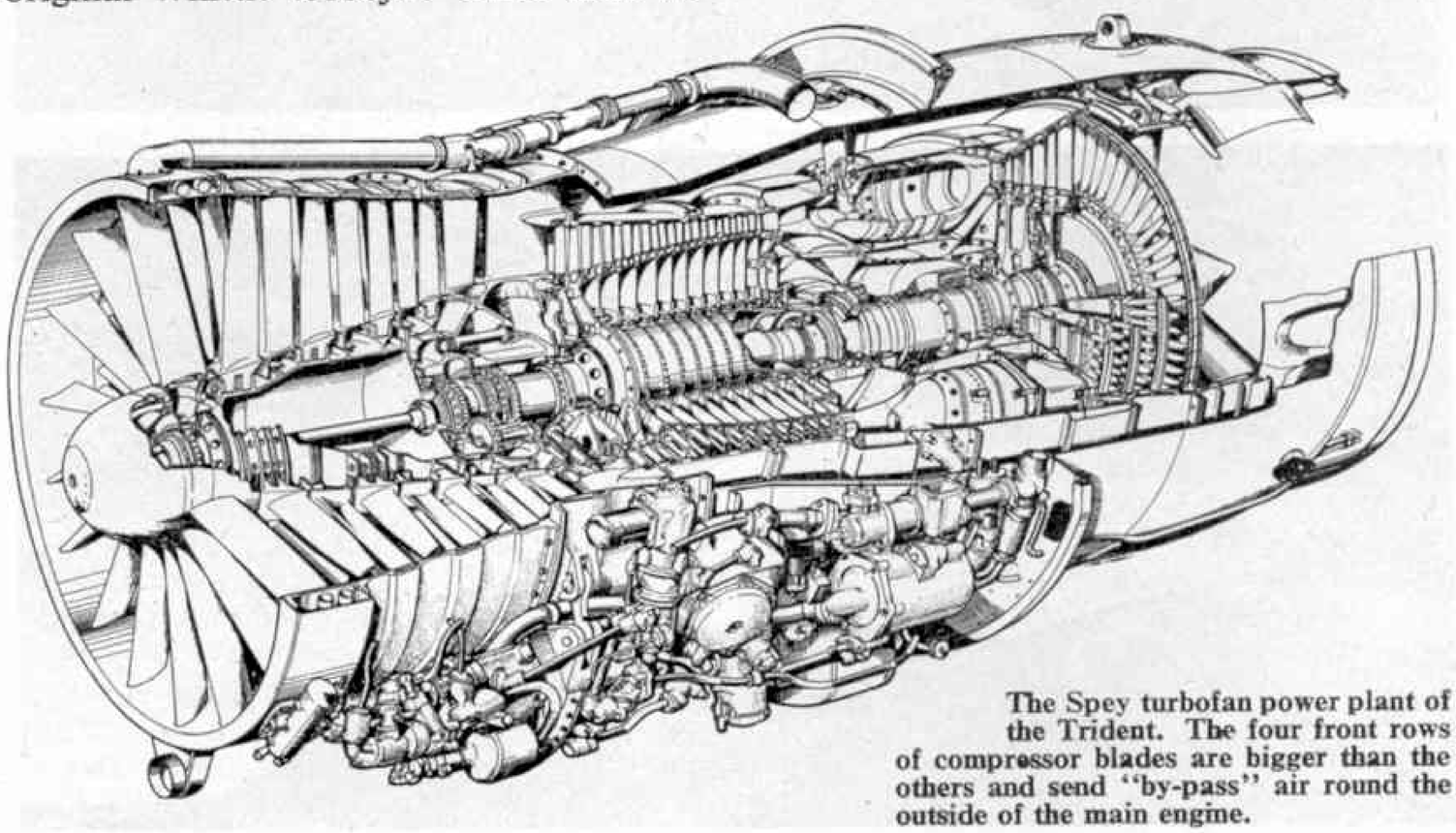
The reason for choosing this type of name is that the continuous flow of air through a jet engine reminded Rolls-Royce of the water flowing endlessly down our national rivers. A big turbofan like the Conway RCo.42/3, which will power the Vickers Super VC10 airliner, can take in as much as ten tons of air every minute at full throttle.

WHAT IS A TURBOFAN?

We hear a lot about turbofan engines nowadays, and I am often asked how they differ from turbojets.

As most of you will know, there is only one main moving part in a simple turbojet. This consists of a central shaft carrying a compressor at the front and a turbine at the rear. In most modern turbojets, known as axial-flow types, the compressor and turbine are each made up of discs carrying rows of little wing-shape blades around their rims.

What happens is that air is taken in at the front of the engine, compressed by the



The Spey turbofan power plant of the Trident. The four front rows of compressor blades are bigger than the others and send "by-pass" air round the outside of the main engine.

The South African magazine Wings *recently reported an amusing conversation between a flying instructor and his pupil before the latter's first lesson in a jet trainer. The pupil asked, "Sir, if something goes wrong, who bails out first, the pupil or the instructor?"*

Smilingly the instructor replied, "In an emergency, the pupil will bail out first; but I can assure you that if he queries the order he will be talking to himself."

compressor and passed on to one or more combustion chambers, where it is mixed with fuel (usually kerosene) and burned. This produces hot gases which pass through the turbine before escaping through the exhaust nozzle at the rear of the engine. The turbine is turned at a very high speed by the gases. Being on the same shaft, the compressor also is turned, enabling it to compress more air and keep the whole process going.

There might be as many as sixteen discs, and rows of blades, on the compressor, each of which compresses the air a little more as it flows past. In a turbofan, the front rows of blades are usually much longer than the others, so that they can push air not only through the engine but through a cylindrical duct or "tunnel" surrounding the outside of the engine. The cold air from the duct mixes with the hot exhaust gases at the rear of the engine and slows them down. This greatly improves the efficiency of the engine, and an airliner with turbofan engines usually has a much longer range than one with simple turbojet engines of the same size. The slower-moving exhaust of the turbofan also makes it less noisy, so that silencers are not needed.

SMALLEST BIG HELICOPTER

Because gas-turbine engines are so much smaller and lighter than piston-engines of equivalent power, and have no cumbersome airscrews, they can be mounted almost anywhere on an aircraft. One result of this is that most new jet airliners have their engines mounted on each side of the rear fuselage. Another is that more and more helicopter designers are using shaft-turbine engines, mounted above the cabin of their aircraft, instead of piston engines mounted inside the fuselage.

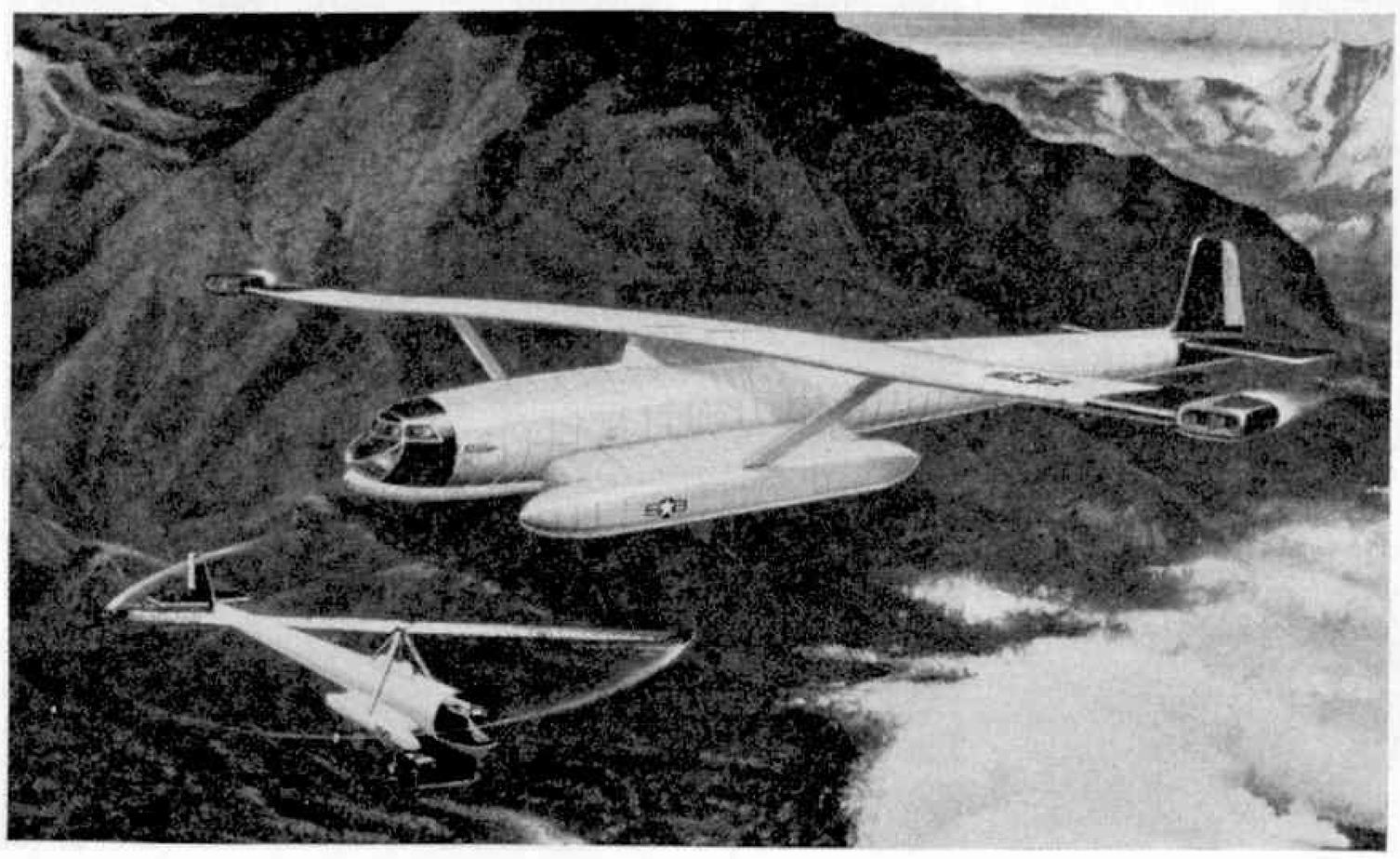
The weight saved by using a lighter engine, and the space saved inside the cabin, enable more passengers or freight to be carried. There has been no better illustration of this than Hiller's new Model Ten99 utility helicopter, which flew for the first time on July 14, 1961.

Although its dimensions are no greater than those of the well-known three-seat Hiller 12E, it will carry six people. This has earned the Ten99 the nickname of the "smallest big helicopter" in the world. With the engine out of the way, its designers have also been able to fit a pair of large doors on the rear of the box-like cabin, so that bulky cargoes and stretchers can be loaded quickly and easily. They do not replace the ordinary doors, of which there are two on each side.

The Ten99 is powered by the new 500 h.p. PT6 shaft-turbine designed at Longueuil, Quebec, by the Canadian Pratt & Whitney Company. Its performance is still secret, but Hiller have certainly produced another real winner.



The Hiller Ten99 utility helicopter in the air. This photograph, and that of the "STORC" which appears on this page, are by courtesy of the Hiller Aircraft Corporation, U.S.A.



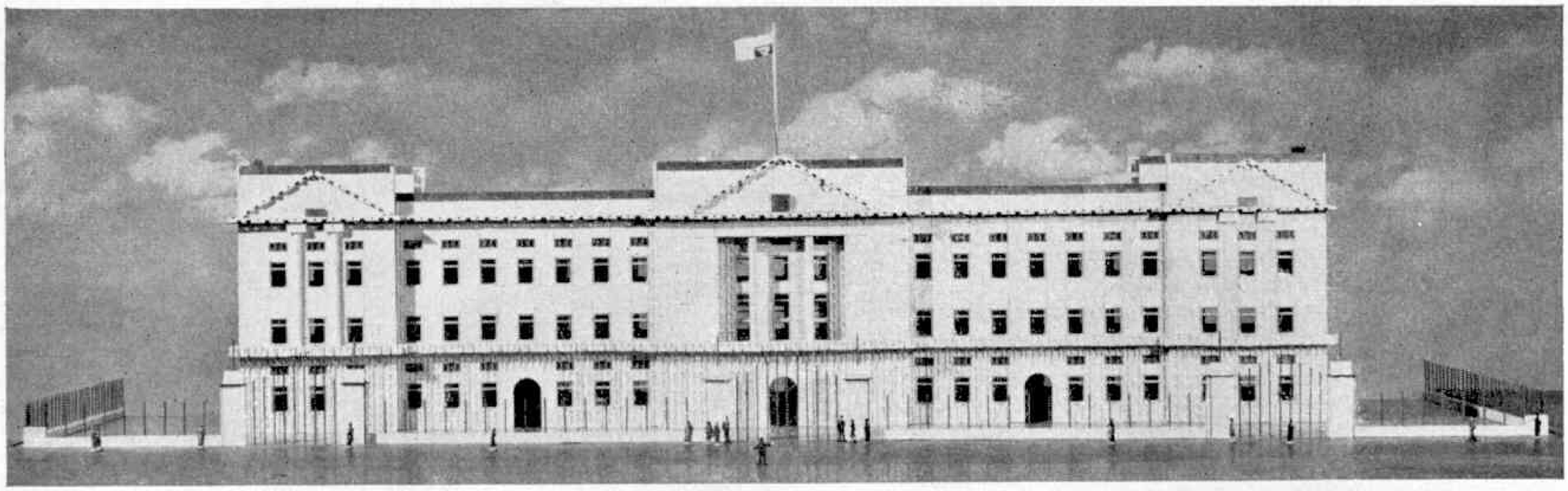
Below: Helicopter rotors can become a fixed wing in the Hiller "STORC." This machine can hover and operate as a helicopter (see lower part of picture) or it can be converted into an orthodox aircraft by revolving one of the two rotor blades on its hub. Both blades are then locked in position to form an aeroplane wing (top). Now, as an ocean-spanning aircraft, the "STORC" can use its wing-tip engines for forward flight.

CONVERTIBLE FLYING CRANE

When is a helicopter not a helicopter? The answer to this question is given in the lower illustration on this page, which shows yet another new design by the Hiller Company. Known as the STORC (Self-ferrying Trans-ocean Rotary-wing Crane), this aircraft is designed primarily as a giant flying crane helicopter, weighing 30 tons and powered by four Continental J69 turbojets mounted in pairs at the tips of its 120-ft. diameter rotor.

One of the main drawbacks with present flying crane helicopters is that they cruise so slowly that a lot of time is wasted while they fly from one job to another. The STORC can overcome this problem.

After finishing a job, the STORC would be converted quickly into a fixed-wing aeroplane by revolving one of the rotor blades through 180 degrees and locking both blades in position at right-angles to the fuselage, so that they functioned as an ordinary aeroplane wing. Still powered by its four tip-mounted J69s, the STORC would then be able to fly at high speed to its next job, with sufficient range for even trans-ocean ferrying.

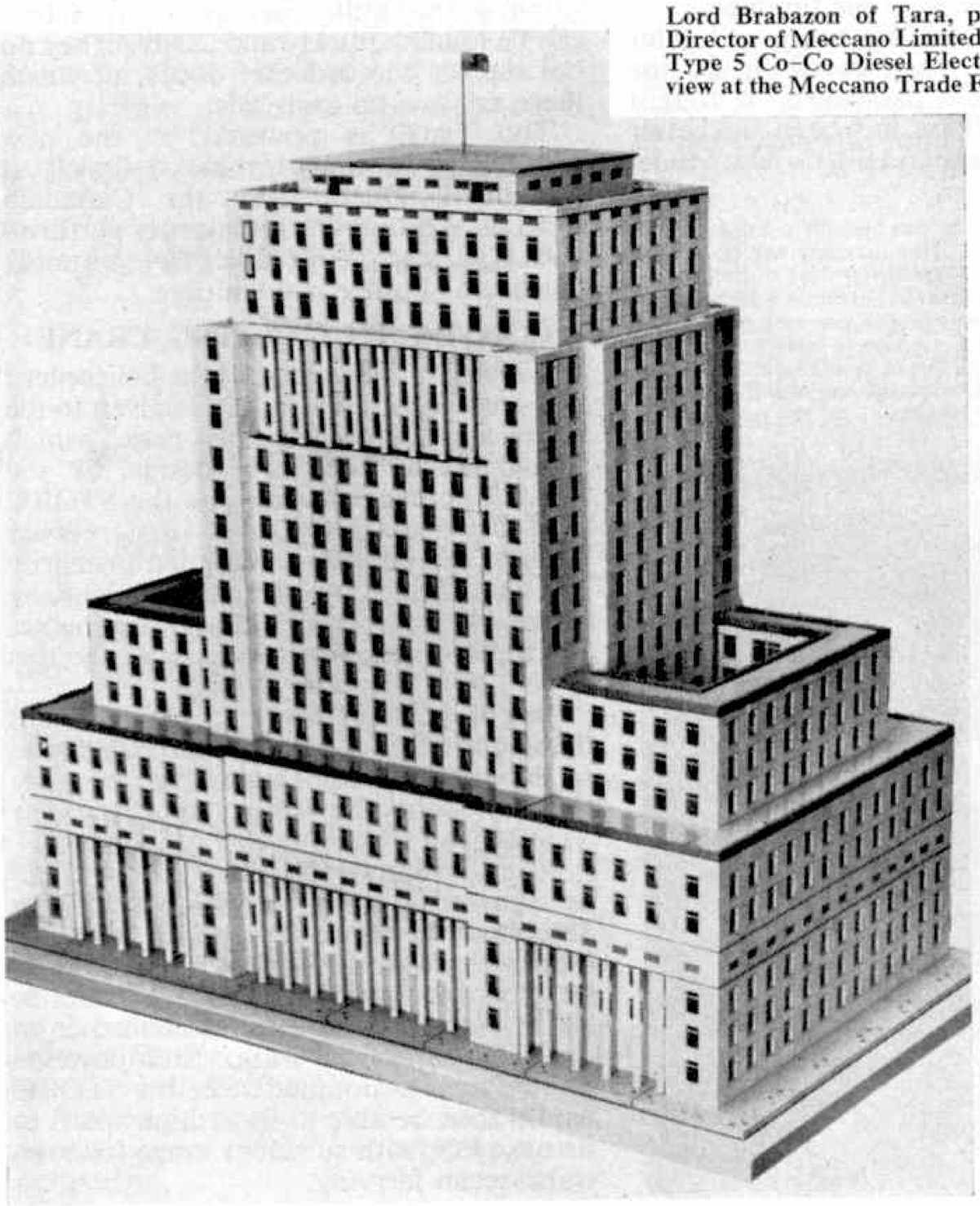


Famous Buildings In Bayko

TWO of the exhibits at the Meccano Trade Fair, held recently in London, which attracted the attention of Meccano Dealers from all over the world, were models of Buckingham Palace (above) and the Sun Life Assurance Building in Montreal, which you see illustrated below. Both were built with Bayko, which is manufactured by Meccano Limited at Aintree, Liverpool. The Buckingham Palace model contained 3,595 separate pieces of Bayko. In the construction of the Sun Life Assurance Building 11,684 pieces were used.

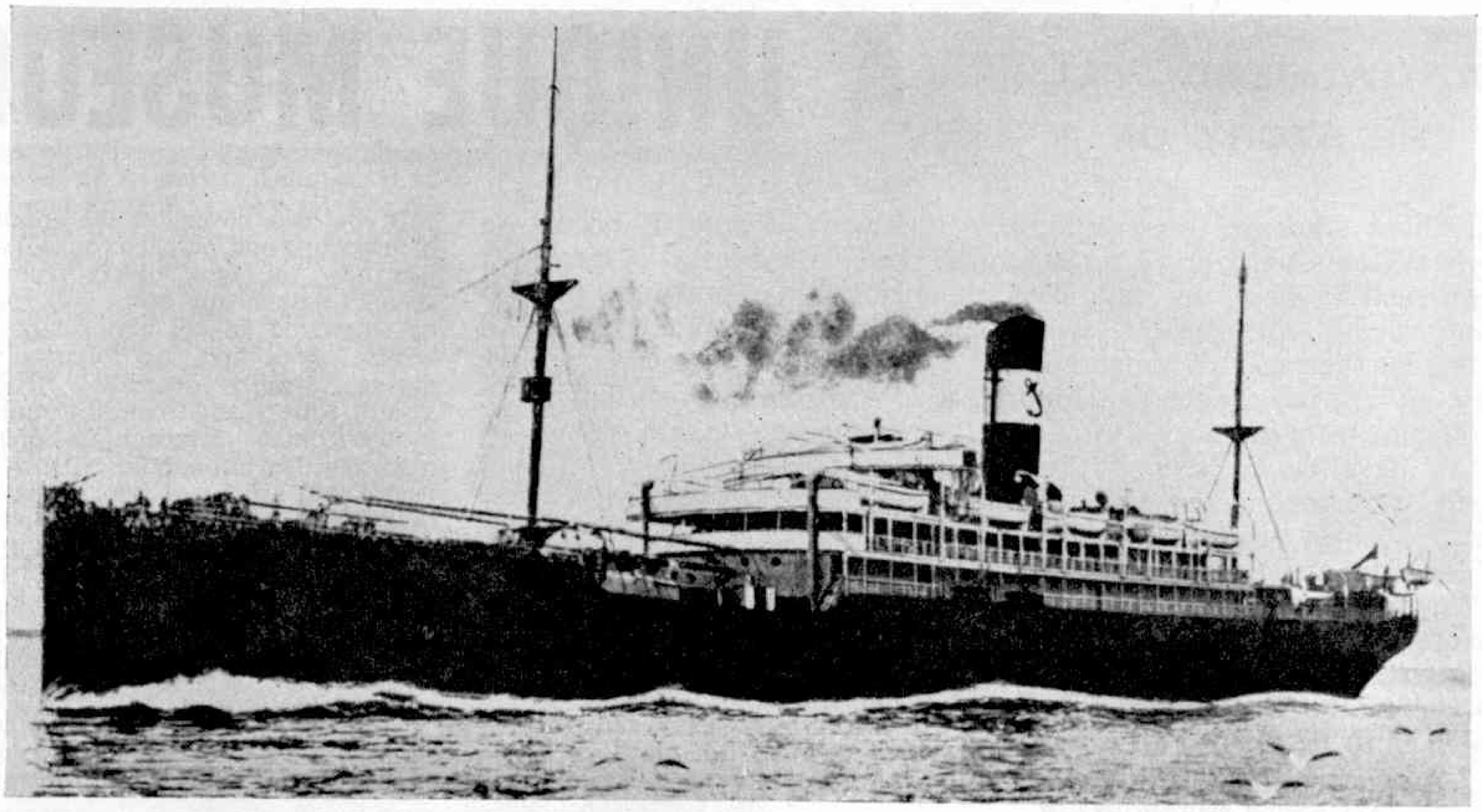
The Trade Fair, held at the Grosvenor Hotel, was opened by Lord Brabazon of Tara, well known as an industrialist, former racing motorist, sportsman and holder of No. 1 Air Pilot's licence.

Lord Brabazon is himself a keen railway modeller and at the opening ceremony he mentioned that before the first world war he and his brother-in-law had what was then believed to be the biggest model railway in the country. Lord Brabazon commented on the passing of the steam locomotive and regretted this since, he said, he associated the steam locomotive with living properties indicated by the mechanism which was clearly seen. He added that Meccano Limited, in making their Hornby-Dublo series of model railways had, by their perfection of design and engineering, produced similar miniature locomotives, with rolling stock, etc., and these had brought much joy into countless homes throughout the country. He complimented the firm on the excellence of their products and in addressing Mr. J. C. Tattersall, Financial Director, and Mr. N. Craig, Sales Director of the Company, expressed the hope that this good work would continue.





Lord Brabazon of Tara, pictured here with Mr. Norman Craig, Sales Director of Meccano Limited, admires an advance model of the Hornby-Dublo Type 5 Co-Co Diesel Electric Locomotive in its new livery which was on view at the Meccano Trade Fair. The model in this form will not be available until later in the year.



The Mystery Of The "Waratah"

By L. BRUCE MAYNE

IT was six o'clock in the morning, and as the large, twin-screw passenger-cargo vessel overhauled the *Clan MacIntyre* signals passed between them.

"What ship?"

"*Waratah* of London."

"*Clan MacIntyre* for London. What weather did you have from Australia?"

"Strong south-west to south winds across."

"Thanks. Goodbye. Pleasant passage."

"Thanks. Same to you. Goodbye."

The *Waratah* passed on and disappeared —literally disappeared—over the horizon. She was never seen again.

The *Waratah*, 16,800 tons, had been built on the Clyde for the Blue Anchor Line and was designed for emigrant traffic between London and Australia via the Cape of Good Hope. She had the most modern equipment but this did not include wireless, for it was only in October 1908 that she was completed. She passed inspection by the Board of Trade, Lloyd's, the emigration authorities, the owners and the builders.

Her maiden voyage was completed without mishap, although Captain Ilbery, Commodore of the Blue Anchor Line, who had been employed by them since 1868, expressed the view that his new ship was unable to shift in dock without ballast. The builders assured the owners that the *Waratah* was stable whether loaded or light.

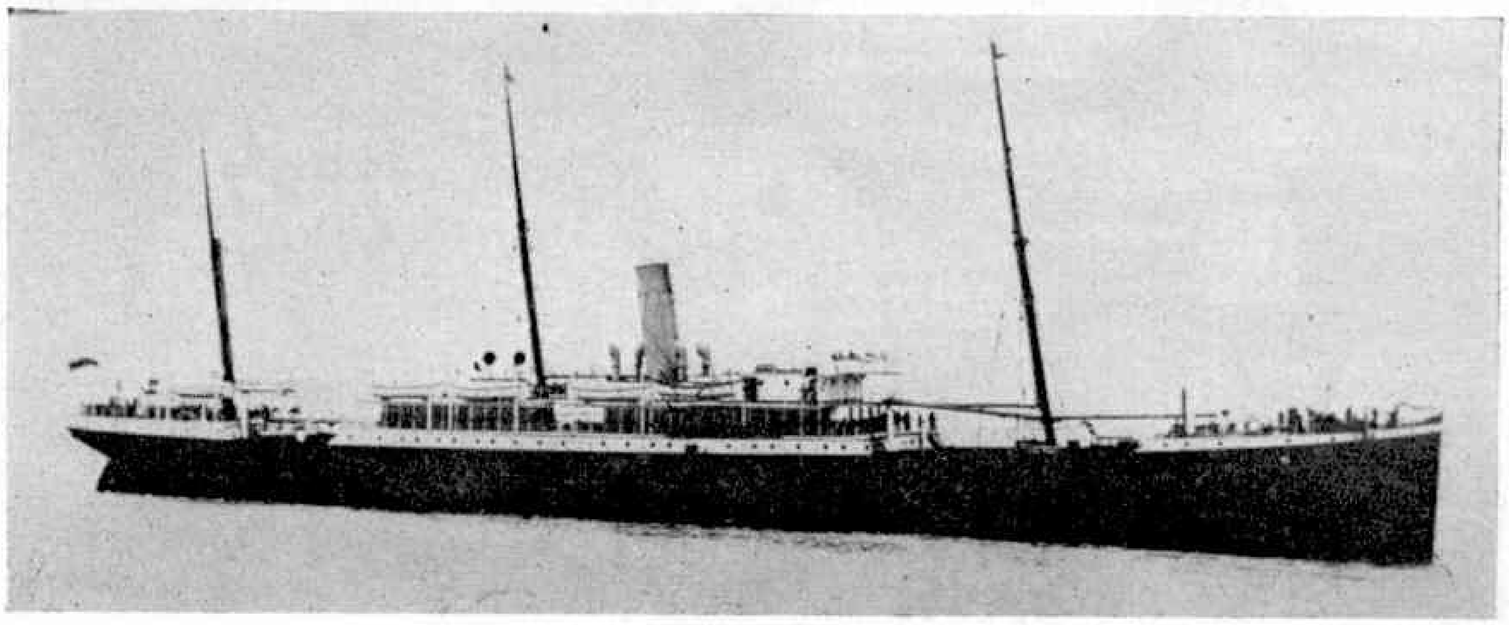
On April 27, 1909, the *Waratah* again left London for Australia with most of the officers who had sailed on the maiden voyage. After calling at various Australian ports she left Adelaide on July 7 and sailed across the Indian Ocean, arriving at Durban on July 25. Here 248 tons of cargo was loaded, bringing the total to 10,000 tons. Having also taken on bunker coal, and with 92 passengers on board, the *Waratah* sailed on the 26th.

Early the following morning, July 27, 1909, she passed the *Clan MacIntyre*, a smaller, slower ship, and continued on her way to Cape Town, her next port of call. But the *Waratah* never arrived.

Later in the day, the *Clan MacIntyre* met heavy seas and strong south-westerly winds. The following day, the winds increased to hurricane force and for several hours the area experienced its worst storm in living memory. But the *Clan MacIntyre* plodded on and weathered the storm safely.

At 9.30 p.m. on July 27 a Union Castle ship, the *Guelph*, sighted a large passenger ship five miles away. This vessel replied to the *Guelph's* signal lamp but the light was faint. The answer to the question, "What ship?" was not understood by the Third Officer, a Mr. Blanchard, who could only make out the last three letters —TAH. If this were the *Waratah*, she had only travelled 70 miles since she had passed the *Clan MacIntyre* fifteen hours earlier, although she was capable of a speed of fifteen knots. Also, if for some

(*Continued on page 132*)



The ship that vanished—the Blue Anchor vessel "Waratah" (above) as she was soon after her completion. (Right) The Union Castle ship "Guelph." At 9.30 p.m. on July 27, 1909, she received a faint signal from a distant ship. Was it the "Waratah"?

PAT TOWNSEND TELLS THE STORY OF

A UNIQUE MUSEUM

FOR those who are interested, there is a wide variety of books on railways, cars, ships and aircraft, and as these varied forms of transport are now such a part of our daily lives, there is ample opportunity to keep well-informed about all the latest models. Hardly the same can be said of tanks, for their use is specialised, and it may be that some readers have never even had the chance to take a close look at one. If you have not, it is difficult, from pictures, to imagine their immense size and bulk.

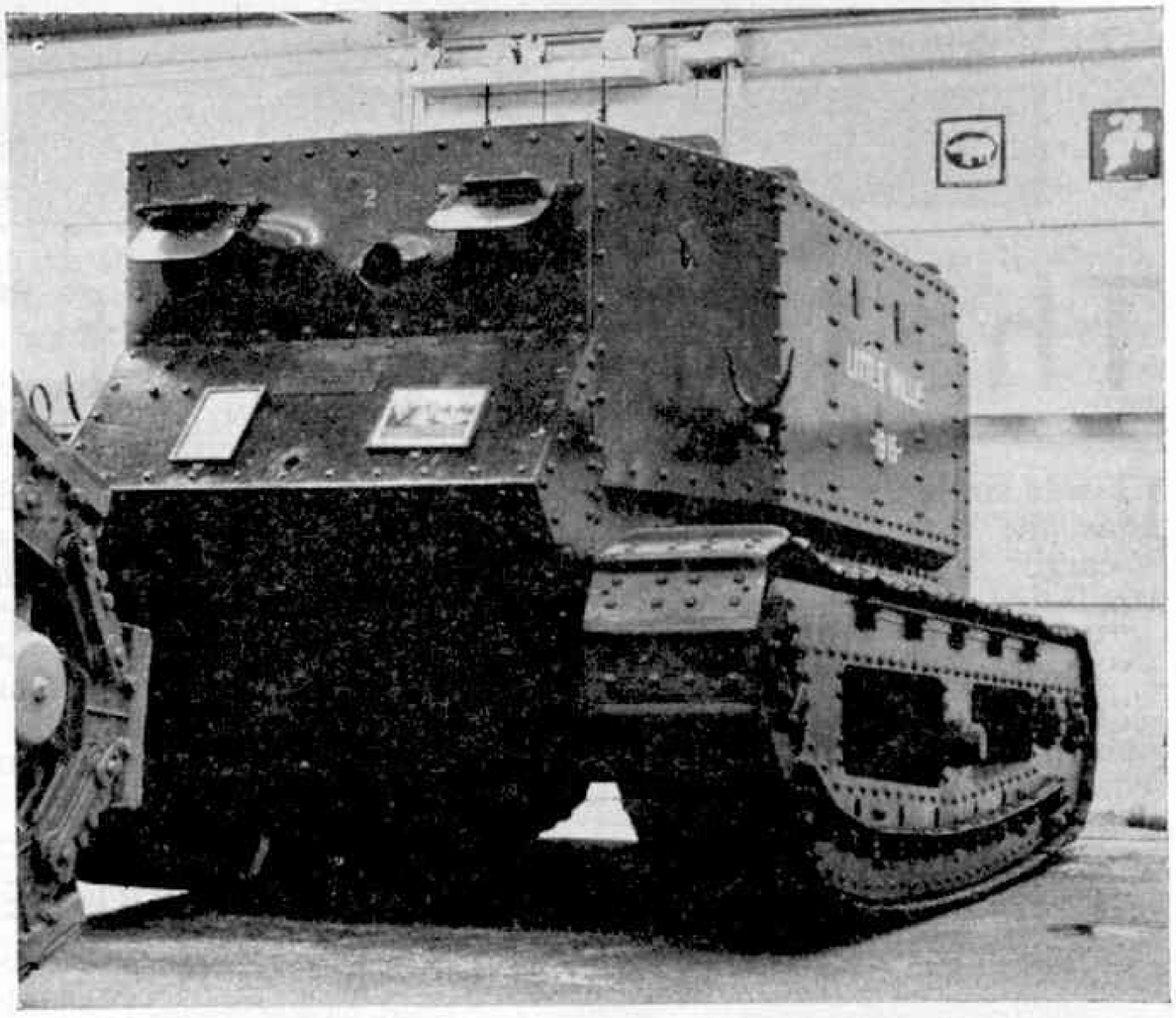
Tanks have to be seen to be believed, as I discovered when I visited the Royal Armoured Corps Tank Museum at Bovington Camp, near Weymouth, some months ago. There are nearly 100 of them there, including "Little Willie", the 1915 prototype of the British tank, the first vehicle to be fitted with caterpillar tracks.

Bovington is a vast storehouse of knowledge for those who wish to know what makes a tank tick, for all the exhibits display cards giving sufficient historical and technical information to satisfy even the most curious.

You can, in fact, trace the development of the war engine from the year 1909, with its Ruston Hornby chain track tractor—an early design from which the tank idea originated—to 1953, a representative of the latter period being the Charioteer with its huge turret and armament.

There are no "Do not touch" instructions at Bovington, as in most museums. As a matter of fact a good many of the exhibits are open to inspection by means of ladders. You can imagine yourself at the controls, or visualise what an exciting ride the crew of a tank must have had under the heat of a desert sun, fiercely opposed by the enemy. It is noticeable that in the later models greater attention was paid to the comfort of the crew.

If you have never had the opportunity of inspecting one, perhaps you will wonder just how the tank differs from other vehicles and in any event you may well be interested in its performance as a vehicle. It is first and foremost a war engine, directly descended from the assault towers and battering rams used by the Romans to breach the defences of many a walled stronghold. History books record that armoured vehicles have been used since ancient times, but not until the invention of the internal combustion engine was it possible to construct the tank in anything like its present form.



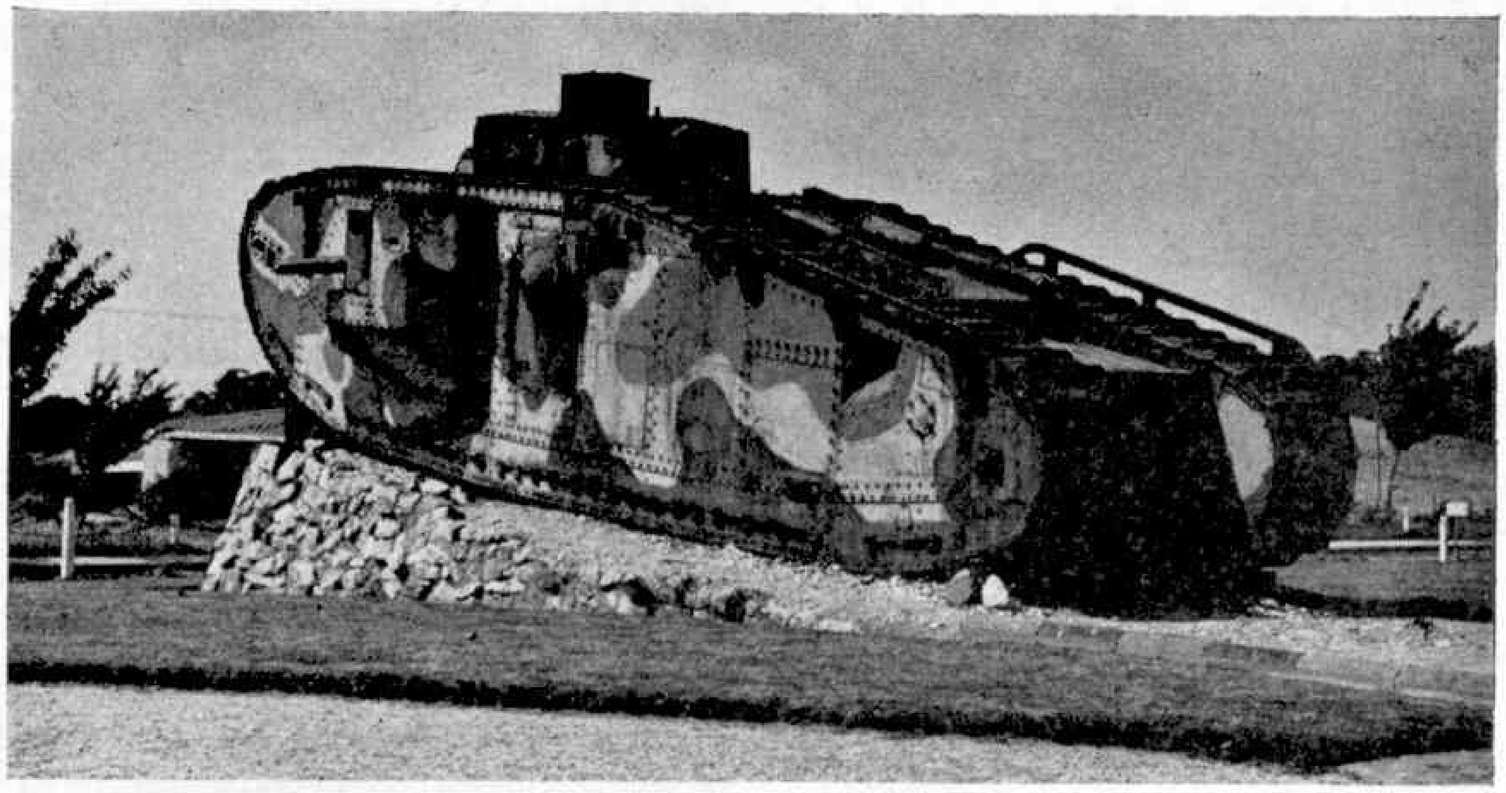
"Little Willie" (right) dates back to 1915. After trials at Hatfield Park it was demonstrated to King George V. Below: A German "Royal Tiger" tank of 1944. It weighed 67 tons, carried a crew of five and had a speed of 26 m.p.h. It was first met in action in Normandy in August 1944.



As compared with, say, the motor car, it is a combination of three essential features—fire-power, armour and mobility. Of these, fire-power is the most important military characteristic and the space required for guns plays a predominant part in deciding the weight and measurements of the vehicle.

From the array of tanks massed at Bovington it is interesting to pick out some for special mention. For instance, there is a 1939 infantry tank, Mark II, weighing 26 tons, a type which Sir Winston Churchill—then Mr. Churchill—personally handled and declared as easy to manage as a taxi-cab. This was the type of tank which was known as the "Waltzing Matilda"—so christened by the Australians after their popular song—which played such an important part in the North African campaign.

German, Russian, Italian, American and Japanese tanks are to be seen as well as a unique collection of armoured



A Mark VIII tank of 1918 vintage (right). Weighing 37 tons and carrying a crew of eight it had a speed of 5 m.p.h.

vehicles—which motor enthusiasts should not miss—by Humber, Daimler, Lanchester and Renault. Of special note is a 1920 Rolls–Royce which at that date could boast a speed of 60 m.p.h., and which, curiously enough, retains the characteristically-shaped radiator on this armoured version built on the standard commercial chassis.

How the word "tank" came to be used is a story in itself. At first "landships" described these huge metal monsters, but the shorter name of "tank" was adopted officially after 1915. In the first place it was an indication of the curious shape of the vehicle but, more important, it was thought that the word tanks, which suggested containers for water rather than war-engines, would enable these war vehicles to be mentioned in reports without betraying any secrets to the enemy.

Readers may remember that the Tank Museum was in the news in October 1960, when one of the German exhibits there, a PZ KW Mark IV, was sent to Germany at the request of the German Armoured Training School who wanted a souvenir, or relic, of the last war. This particular tank was captured in 1943.

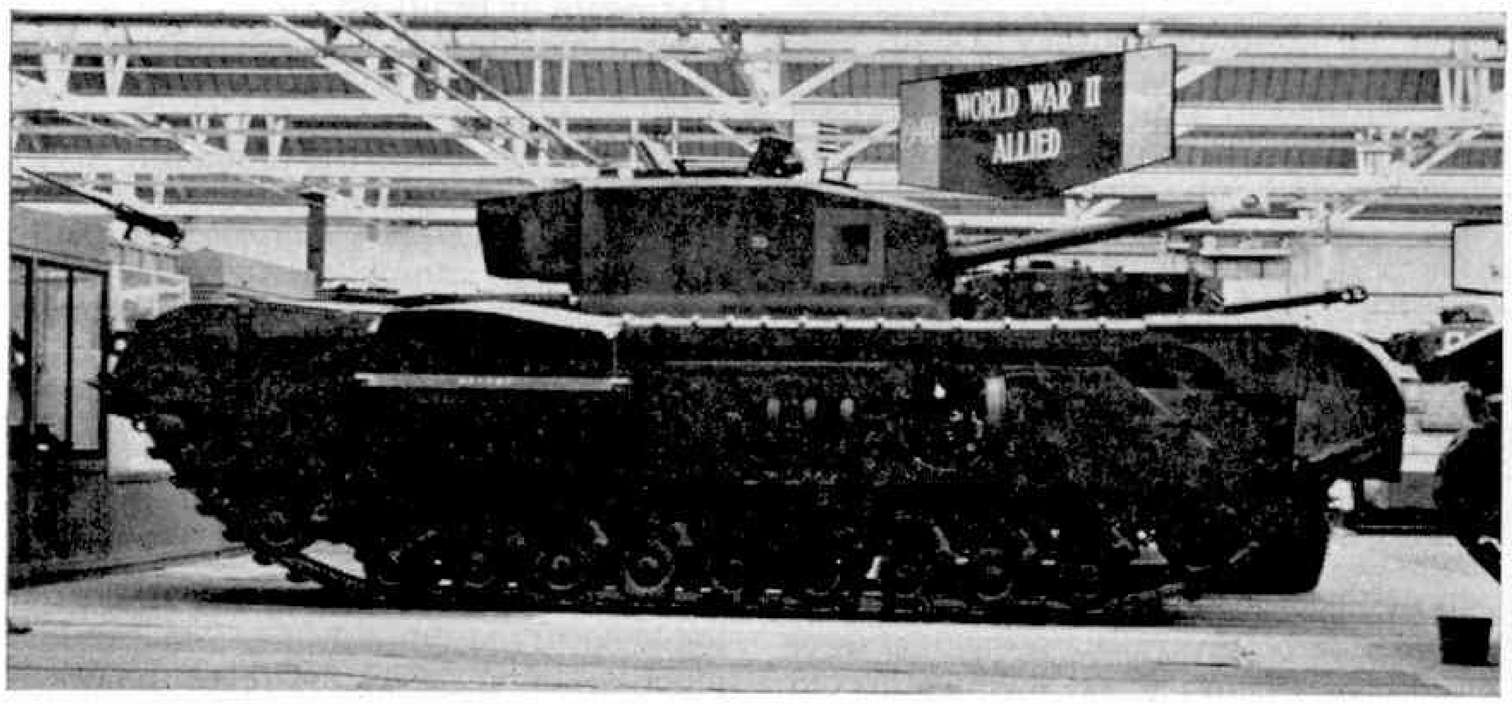
The bulk of the exhibits date from 1939, during which year the Royal Armoured Corps was formed, justifying the belief that the part played by the first tanks to go into battle in any great number, in 1918, had to a large extent been responsible for the Allies' decisive victory. All the tanks and armoured vehicles of World War II are represented, as well as some historical specimens dating back to 1917. These escaped the scrap-heap by being used as pill-boxes in wartime.

Quite apart from the tanks themselves which, as you would expect, take up all the floor space, there is much to interest visitors in the showcases all round the walls. They contain a fascinating collection of mementos captured from the enemy, such as a Japanese helmet, German standards, uniforms and firearms, ingenious devices used by prisoners-of-war to escape from the enemy camps, and a whole host of howitzers, bazookas and other weapons of war.

All are well displayed, so that you can see everything, and the white-coated officials on duty are most courteous, and willing to answer your questions.

Who can forecast the future of the tank? It has certainly played a big part in military strategy so far this century, but being essentially a heavily-armoured land vehicle, it is slow-moving, and it is rather like comparing the tortoise with the hare when one considers the tank against the lightning-swift aircraft of today. Yet, though our eyes tend to gaze skywards in this age of jet planes and space probes, the tank remains, on land, a substantial symbol of power.

One of the most famous tanks of the second world war was the Churchill Mark VII whose 39 tons were carried at a speed of 13 m.p.h. The crew numbered five. Built by Vauxhall Motors Ltd., this model was the last tank off the line in 1945. It could be used as an armoured vehicle, a flame thrower or a bridge layer.



BOOK REVIEWS

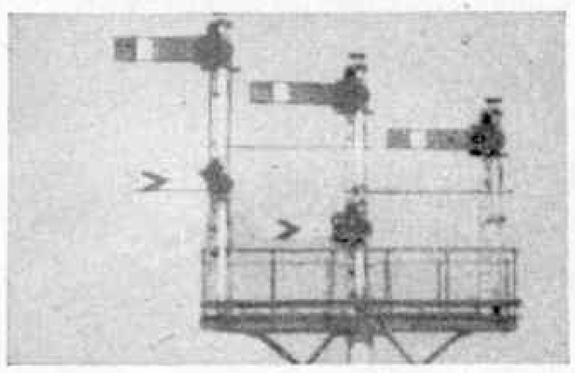
Now that the days are getting brighter and longer it is high time to be planning spring and summer pursuits, and in this connection four new additions to the Arco Handybook series, all published at 12/6, offer very enjoyable and useful reading.

"Caravanning", by John Vincent Brittain, forms an introduction to this increasingly popular pastime and will serve as a valuable reference book to all caravan enthusiasts. Aspects covered include the development of the modern caravan, constructional techniques, hints on touring, the legal aspects of caravanning and an informative chapter on caravan organisation. In **"Canoeing"**, B. E. Jagger, who for some years has served on the Proficiency Committee of the British Canoe Union, presents a comprehensive survey of this fine outdoor sport. Early in the book the reader is given advice on how to construct these craft at home, and how to handle them. The various facets of canoeing, including touring and racing, are reviewed, and a chapter on slaloms will appeal to all young readers who visualise themselves as ultimate experts in this exciting sport.

We move now to **"Sailing—Step by Step"**, in which author Jack Knights tackles a recreation which has grown enormously in popularity in the last few years. Your reviewer confesses that, when opportunity allows, he likes nothing better than to sit at the tiller of a yacht in a fair breeze and feel the craft heeling beneath him. But, like many others, he has been content to enjoy this thrilling sport without worrying overmuch about *why* a yacht sails. Mr. Knights has changed that with a neat and, shall we say, shipshape explanation in his chapter "Sailing plainly explained". If you like boats, you will like this book!

Finally, for those who enjoy ball games and seek an outlet for summertime energy **"Lawn Tennis"**, by C. M. Jones, introduces its readers to one of the finest and most enjoyable of sports. Mr. Jones, tennis correspondent, commentator and coach of distinction, who has played for Britain in the Davis Cup, handles in detail the approach the novice should give to tennis. There must be many modern youngsters who aspire to Wimbledon; thousands more will be content to play a competent game at club level. No matter how near or how far their sights are fixed, they will find a great deal of help in this book.

G.B.



RAILWAY NOTES

Contributed by R. A. H. Weight

ABOARD THE NORTHBOUND "YORKSHIRE PULLMAN"

AS part of the 1961–2 speed-up of principal East Coast services, the northbound *Yorkshire Pullman* was quickened last September by a full half hour, and scheduled for Deltic diesel haulage on its 3¼-hour London–Leeds run. It is the longest of the Pullman expresses to and from King's Cross, conveying a Monday–Friday formation of eleven heavy cars, always well filled, and sometimes with every seat booked. This means about 460 tons to be taken down to the first stop, at Doncaster, at an average of 64½ m.p.h., the fastest timing to date in Britain for so substantial a regular load.

Like the *Master Cutler* (the stock of which makes additional London–Sheffield runs), *Queen of Scots* and *Tees–Tyne Pullman*, it includes new, beautifully-appointed first class and second class cars of distinctive appearance, running on Commonwealth bogies with roller bearings. They feature long, double-glazed windows; Stone's pressure ventilating and heating system; quiet running; almost perfect seating and lighting etc.



No. 60130 "Kestrel" with the down "Queen of Scots" Pullman passing Stoke box, summit point of the G.N. main line and 100 miles from King's Cross. Photograph by T. G. Hepburn.

On an autumn journey Deltic No. D9003, *Meld*, leaving King's Cross at 5.25 p.m. displayed powers of acceleration, hill climbing and so on, far in advance of anything hitherto experienced with so heavy a train over a route with which I have been familiar since the days of the G.N.R. Atlantics and, later, the Gresley Pacifics.

Potters Bar, 12¾ miles, at the top of the long gradual rise through the outer London suburbs, was passed in 15 minutes at 72 m.p.h. In spite of a severe repair slowing well up the similar, but longer, ascent (begun at 90 m.p.h.) between Peterborough and Grantham, and after steadily increasing speed on the final three miles at 1 in 178, 72 was again our astonishing rate when passing the summit at Stoke signal box. Deltics have sustained well over 80 with this and lighter trains when unchecked. Stoke, Lincs, signal box depicted in an accompanying illustration, is an ex-G.N.R. style country structure. It is famous as a timing point, and as the "prelude" to many exciting descents. At that point four tracks, northbound, converge to two for Stoke tunnel.

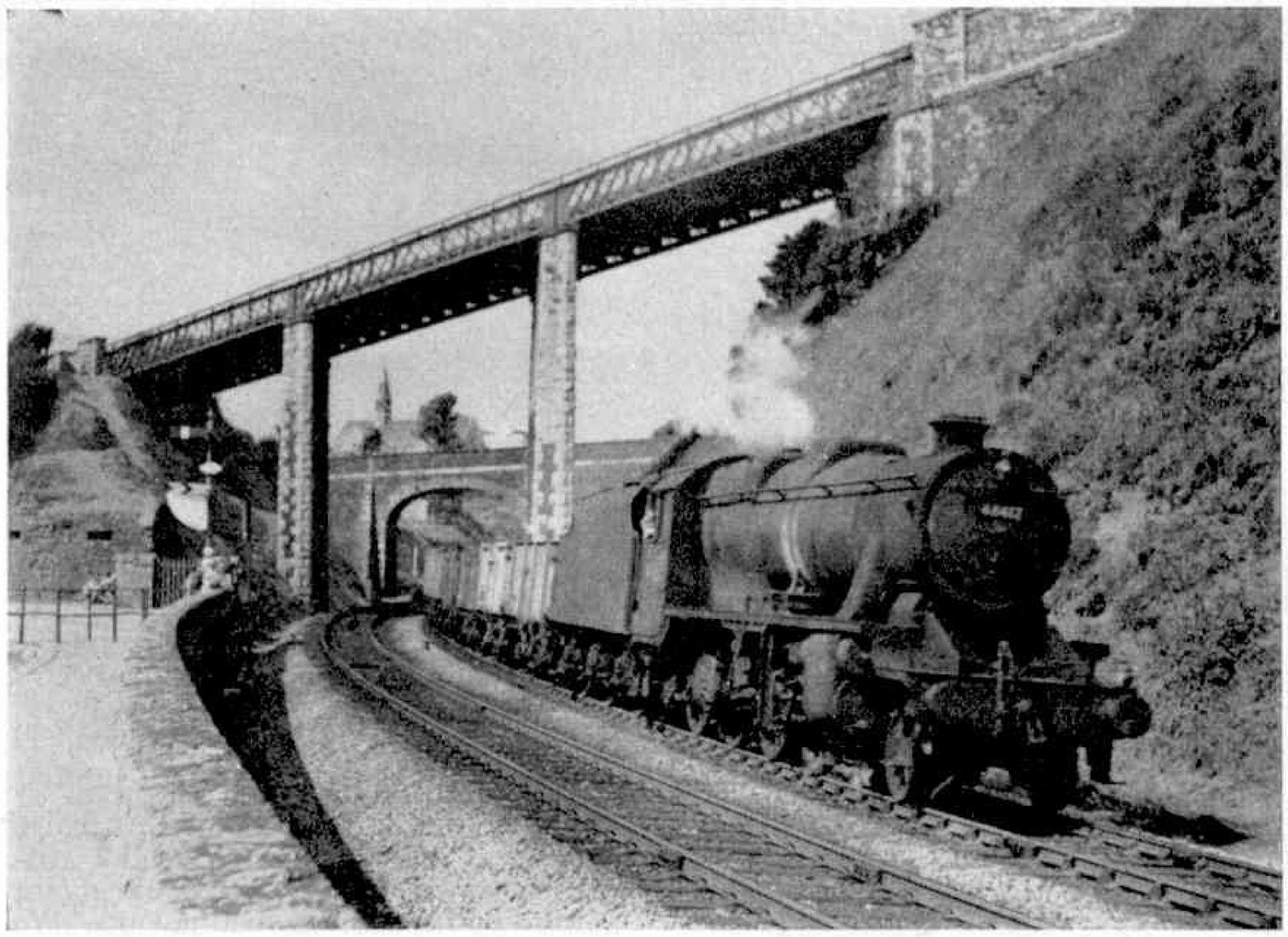
There had been two other slowings for engineering work, careful observance of speed restrictions and some easings, although a fast average was maintained. It was very dark outside by the time we passed Newark, 120 miles, in 107½ minutes. With another 90 maximum, then an uphill minimum of almost 80, the 135 miles from King's Cross start were covered in two hours. It seemed that time was well in hand for a punctual arrival at Doncaster —156 miles in 2 hr. 25 min.—despite a crawl over Bawtry Viaduct, due to a subsidence, and another track renewal slack. But there was something temporarily amiss at Retford, Notts, necessitating, after a long slowing past yellow warning lights, a complete stop at the South Junction signals, just before the level crossing of the Sheffield–Lincolnshire tracks, and the station. So, as it is only a short run on to Doncaster and the two extra restrictions just mentioned had to be observed, we were a few minutes down on arrival, although there had been a typically rapid recovery while opportunity offered.

I alighted at Doncaster. After detachment there of the four rear cars, to be taken on to Hull by a K3 2–6–0, the main train was soon away to Wakefield and Leeds, whence the final destinations, after reversal and a further division, would be Harrogate or Bradford.

Next morning at Doncaster I watched the arrival, after its 41-mile fast run, of this train's Hull portion headed by a V3 2–6–2T. Then came the remaining seven cars from Leeds to King's Cross hauled by A1 4–6–2 No. 60133, *Pommern*. Exactly to time, the complete express left for London; thus another *Yorkshire Pullman* round trip of 400 miles or so was in progress. So far the southbound journey is one of the remaining steam workings, on a more liberal timing.

DONCASTER–HULL–YORK

As I described recently, Doncaster is an important G.N. Line station and multiple junction. While I waited there the down



L.M.R. 8F 2–8–0 No. 48417 on W.R. duty passes along the sea wall near Teignmouth with an up freight. Photograph by S. Creer.

West Riding, after making its Hitchin–Retford run, fastest in Britain at the moment, passed through headed by *Meld* which had been back to London during the night and left there again for Leeds at 7.45 a.m.

Type 4 diesel locomotives were on several expresses to and from King's Cross including *The Talisman*, and the through York–Lowestoft train as far as March. Other Deltics were on the up *Tees–Tyne Pullman*, and the 8.15 from King's Cross by which I travelled on to Hull after an engine change to K3 No. 61893.

Steam locomotives observed included A4, *Walter K. Whigham*, passing through on the 10.0 Leeds–King's Cross express and A3, *Tracery*, just out of works, repainted, with small smoke deflectors. On passenger or freight there were V2 2–6–2, B1 4–6–0, K3 2–6–0, and W.D. or 02 2–8–0s etc., as well as a few diesels.

Along the Doncaster–Hull route, serving the port of Goole and later providing extensive views across the wide Humber to Lincolnshire, Pacifics and V2s are not permitted owing to weight limitations. Steam K3 and B1 classes have predominated lately to a considerable extent, although type 3 diesels of the D6700 class, or similar, are expected to be operating widely in South Yorkshire soon.

Across country from Hull to York I enjoyed a front-seat view from a two-coach diesel set, noting the junctions with the Scarborough lines etc., though there were not many passing trains. It was a lively 42-mile journey in 57 minutes, including four stops. We arrived slightly before time in York.

THROUGH FOUR REGIONS

A recent innovation is through locomotive running by Peak Class type 4 diesels, Derby or Crewe-built, between Bristol and Newcastle, and on certain part-way N.E.R.–L.M.R. workings. I boarded, at York, the 10.30 restaurant car express from Bristol that had travelled via Gloucester–Birmingham–Derby–Sheffield. The engine, No. D40, stationed at Bristol, W.R. happened to be the one used not long ago during trials up the steep Lickey Incline, south of Birmingham, which appeared to prove that considerably heavier-than-normal passenger or freight trains could be hauled up unaided by these 2,500 h.p. units if necessary. For the time being, however, banking engines continue in use.

This train's Bristol–Newcastle journey, over parts of the Western, London Midland, Eastern and North Eastern Regions, totals about 303 miles. This is ten miles further than via Darlington, as it runs over the N.E. Durham coast route from Northallerton, where it diverges by means of a burrowing junction, along a portion of the pioneer Stockton and Darlington Railway's course and on through West Hartlepool, then Sunderland.

There are varied views of important towns, great industries and collieries, a busy port with miles of timber stores and quiet stretches of sea and moorland. We circled round Gateshead, over the network of triangular junctions and so on providing alternative routes, to arrive impressively at dusk in Newcastle by way of the King Edward Bridge.

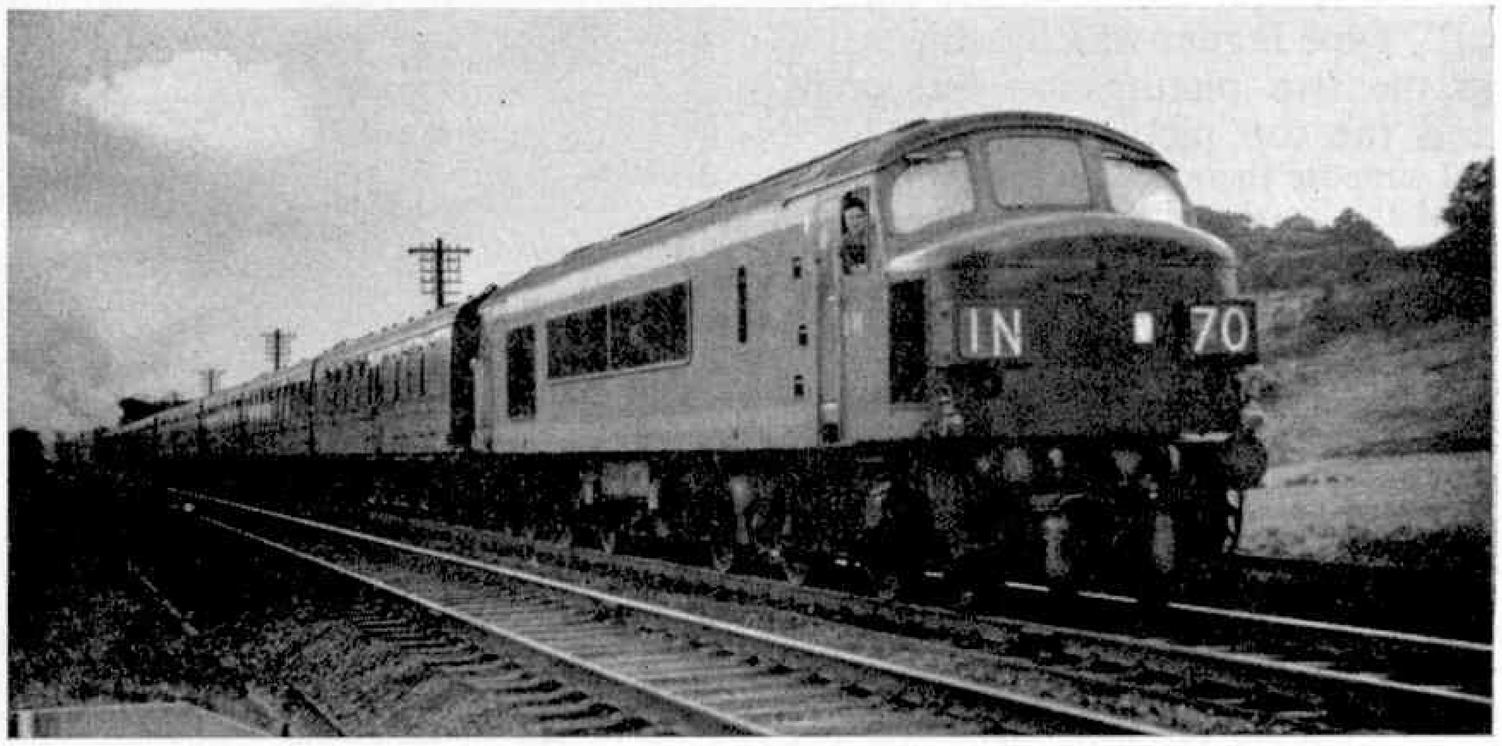
NORTHWARD BEHIND PACIFICS

Peppercorn A1 No. 60140, *Balmoral*, stationed at York, gave me a smart run well within schedule on a nine-coach week-end extra train. From York on almost level track we passed Northallerton, 30 miles in 28½ minutes, averaged 74 m.p.h. for 17 miles with a maximum of 81, then eased somewhat, but stopped in Darlington, 44 miles in no more than 42½ minutes. Over the next 36 miles of a partially more difficult nature to Newcastle, more time was gained and arrival was four minutes early.

I travelled non-stop from Newcastle to Edinburgh on a clear, bright day ideal for enjoying the grand scenery. The train was the advance portion of the *North Briton* —Leeds – York – Edinburgh – Glasgow morning express—behind A4 No. 60016, *Silver King*, a name well known to many Hornby-Dublo enthusiasts. Again the load was nine coaches, this 310-ton train presenting little difficulty on a 2¼ hour timing for 124½ miles. There were a good many additional slacks and checks, however. Running was lively over the numerous undulations, with maxima of 75 m.p.h. before, and 79 after, Berwick, and lost time was regained.

REMODELLED YARD

Dringhouses (York) "Up" Marshalling Yard, recently remodelled, is the first in the country to deal exclusively with "fully braked" express freight trains.

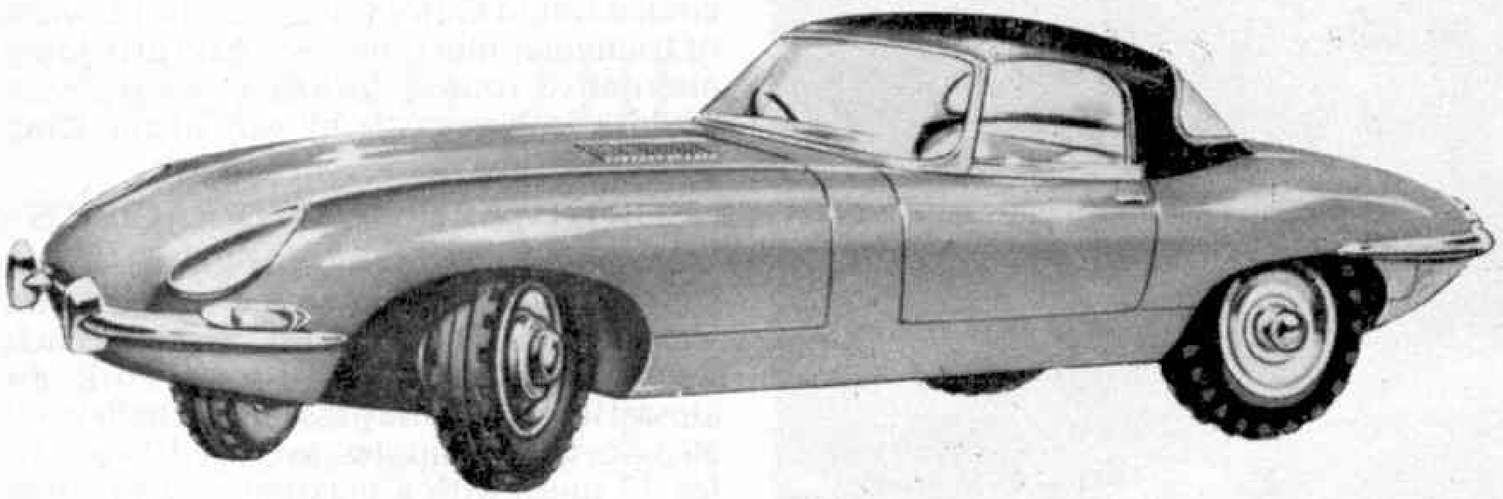


A Bristol–Newcastle express hauled by a type 4 diesel-electric No. D86, with assistance in rear from a steam locomotive, climbs the 1 in 37 of Lickey Incline. Photograph by C. Ord.

DINKY TOYS NEWS

BY THE TOYMAN

JAGUAR WITH SLEEK AND SPEEDY LINES HAS . . .



Improved Steering And Interchangeable Hood

ALSO NEW: CANADIAN MOUNTIES' PATROL CAR

THOUSANDS of *Meccano Magazine* readers are eager to note, as each issue of the *M.M.* comes out, just what the month has in store for them in the way of new Dinky Toys, and I think that all enthusiasts will regard the current month as one of exceptional merit in this regard. It sees the introduction of two more most attractive cars which I want to deal with fairly fully in these Notes, and I will begin by discussing the wonderful model of the famous "E" Type Jaguar which is illustrated in the two pictures on this page, and the top picture on page 109.

I suppose there are many who will regard this as the king of all Dinky Toys miniatures so far manufactured—a model which they will feel must be added to their collection. It has all the attractions of the latest Dinky Toys models—four-wheel suspension, windscreen, interior seating, steering wheel and dashboard, but in addition to that it has two new features which are quite outstanding and which I am sure will win the admiration of all who see this car.

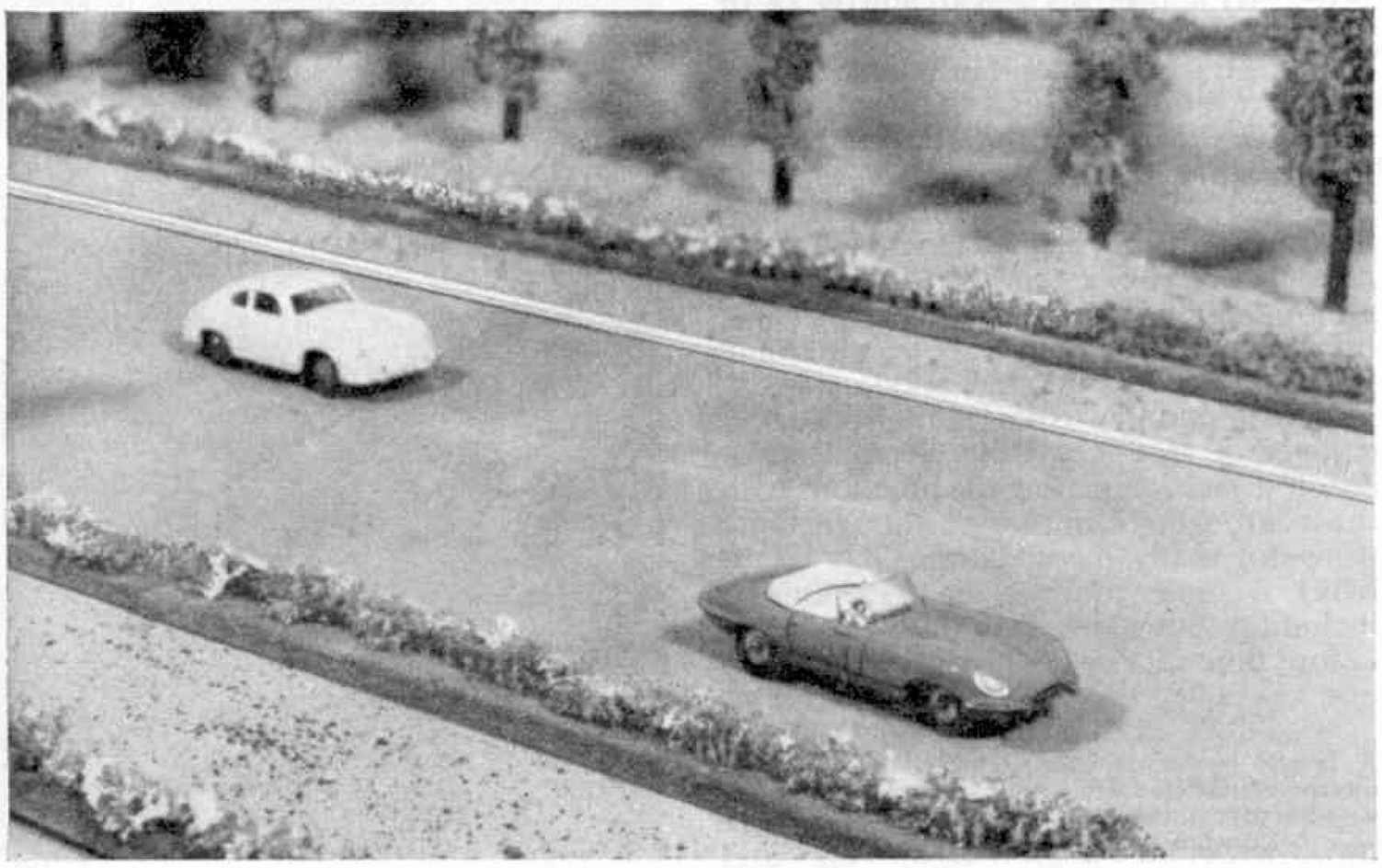
First of all, this sleek new model has an improved form of fingertip steering which provides a greater lock with smoother action. In future this feature will be added to Dinky Toys models whenever possible. You will see how sharp a lock can be obtained with the new steering from the photograph at the top of the next page, which shows the underside of the new model. Note also the detail that has been incorporated into the die-cast base.

But a still further fascinating attraction about this model (which is No. 120 in our list) is the fact that it is really two cars in one. When an enthusiast buys this toy and takes it from its box he will find it fitted with a very realistic plastic hard top. This can be lifted quite simply from the car and in its place can be fitted a folded hood—which is packed separately in the box—thus converting the car into an open tourer.

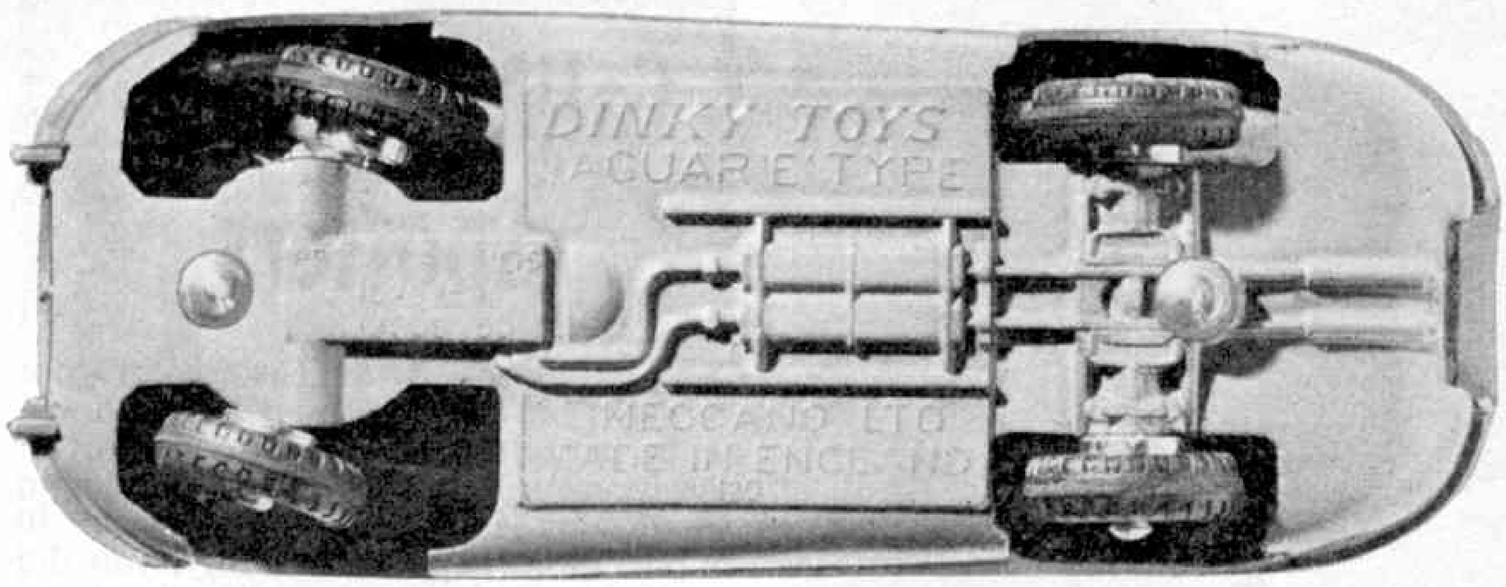
The replacement of the one hood by the other gives a quite distinctive change to the look of the vehicle and does enormously increase its value from the point of view of variation in road layouts. We have illustrated the new car in both these forms on this page, the top picture showing it with the detachable hard top in position and the lower picture showing the new car fitted with its folded hood. In this latter illustration you see the Jaguar travelling along a section of a motorway obviously at speed. It has just overtaken a Porsche 356A (No. 182), which is hardly surprising since the Jaguar is capable of speeds of about 150 miles an hour without any special engine tuning.

An Easy Victory

Manufactured by Jaguar Cars Ltd., of Coventry, the "E" Type is the last word in sports cars, a fact which is borne out by the victories it has achieved in different sports car races and, indeed, in racing-car events the world over. A prime example of this is that on its very first appearance



Speeding down the motorway goes the "E" Type Jaguar overhauling a car on the nearside lane—a Dinky Toys studio scene.



The underside of the new "E" Type Jaguar showing the detail and the effective turn of the improved steering.

on the race track, an unmodified production model gained an easy victory over the rest of the field at Oulton Park, the Jaguar on that occasion being driven by Graham Hill. It has a six-cylinder, twin overhead camshaft engine with a cubic capacity of 3,781 c.cs which gives a power output of 265 b.h.p. at 5,500 r.p.m. Its main dimensions are as follows: Overall length 14 ft. 7⅜ in., overall height 4 ft. ⅛ in., overall width 5 ft. 5¼ in., wheelbase 8 ft., front track 4 ft. 2 in., rear track 4 ft. 2 in.

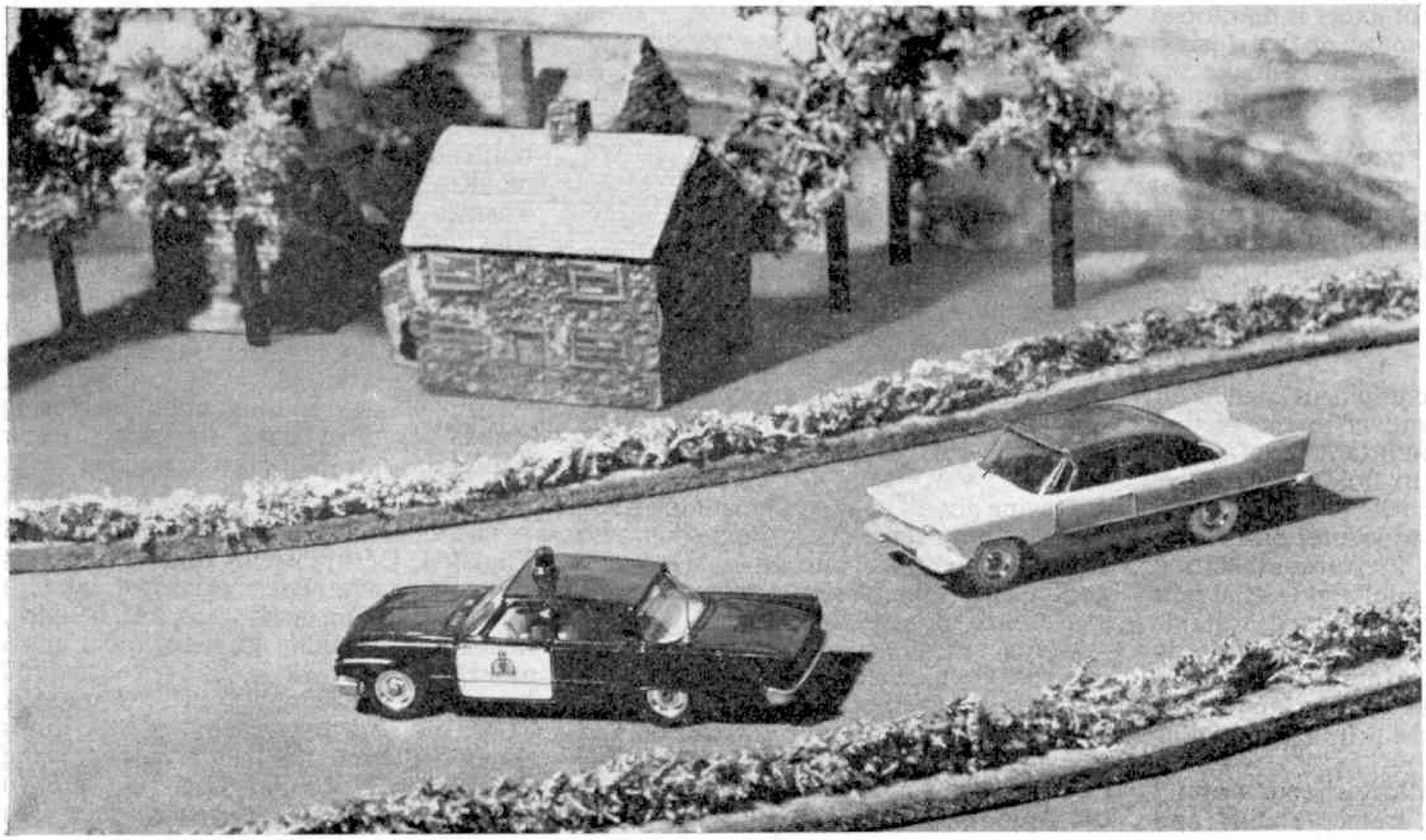
When this car was tested it was found to accelerate from 0 to 60 m.p.h. in seven seconds and from 0 to 100 m.p.h. in sixteen seconds. These tests took place in wet weather, and the results serve to show the vehicle's amazing power and performance.

Finished in a sporting red gloss, with a black "hardtop", and the alternative folded hood in cream, the Dinky Toys model is 3½ in. long, 1⅜ in. wide and 1 3/32 in. high. Both front and rear tracks are approximately 15/16 in. wide and the wheelbase is 2 in. In effect, the model is a perfect replica of its world-famous prototype.

Well, so much for the Jaguar. Now what about the other new model to be released this month. It can be seen in the remaining illustrations in this month's Notes and is a miniature reproduction of a Royal Canadian Mounted Police car, listed in our Dinky Toys catalogue as No. 264 R.C.M.P. Patrol Car.

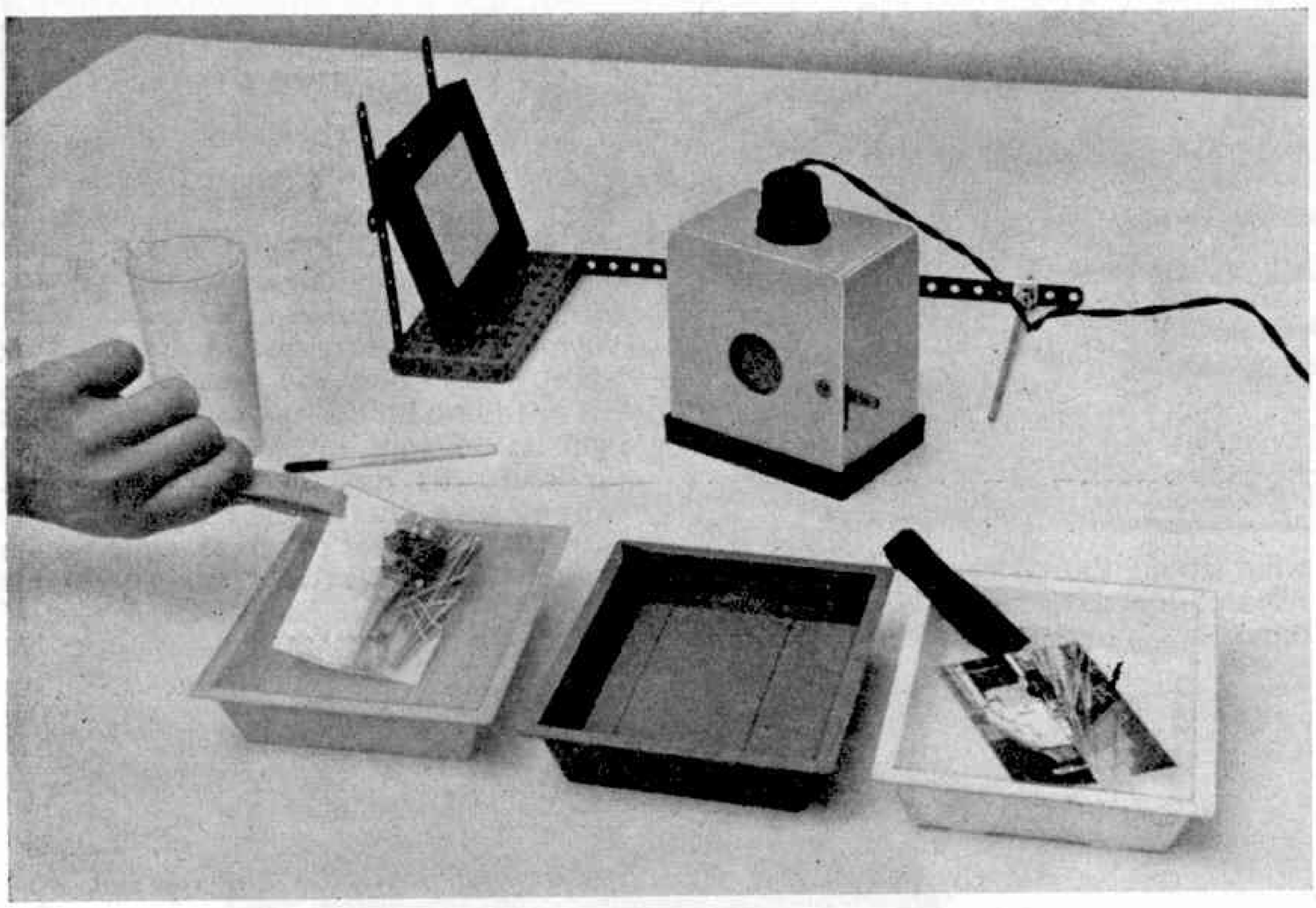
Based on the Ford Fairlane, this exciting model possesses all the usual Dinky Toys features—windows, seats, steering wheel, suspension and fingertip steering, but in addition it has an imitation warning light on the roof and a radio antenna at the rear. Its appearance is smart yet workmanlike, the vehicle being navy blue with the front door panels in white, which gives a most effective contrast. In the centre of the white panels is the crest of the Royal Canadian Mounted Police.





"Mounties" at the wheel—the R.C.M.P. car (above) with imitation warning light and radio aerial. This close-up reveals the amount of detail on this exciting new model.

Left: They say the "Mounties" always get their man. Here the R.C.M.P. Patrol Car helps to justify this statement.



CONTACT PRINTING

DEVELOPING and printing your own pictures is the only sure way to really successful and satisfying photography. The best way of making a start is to try your hand at contact printing.

Printing, as I mentioned last year, is very similar to making negatives. In contact printing, a negative and a piece of contact printing paper are placed together in a printing frame. Light is then allowed to shine through the negative and the sensitive emulsion of the piece of printing paper is exposed. This is the same process as exposing a film in a camera.

The exposed piece of paper is developed to produce a visible image. After rinsing, it is placed in a fixing bath to make the image permanent. Later the print is washed and dried.

Contact printing paper and photographic chemicals are obtainable at chemists and photographic dealers, and there are also available today some excellent do-it-yourself kits which provide you with everything you need to make a start at low cost.

* * * *

Most of the basic equipment needed for contact printing is shown in the picture above. The most important requirement is a printing frame to hold the negative and printing paper. Any low wattage lamp is suitable for exposure, but shown in our picture is a useful combination exposing lamp and "safe" light—that is, a light sufficiently dim and of a suitable colour to let you see what you are doing without fogging the printing paper. It is important to keep the exposing lamp at the same distance from the printing frame for each print.

Also shown in the illustration is a useful Meccano printing frame stand and distance gauge. The stand consists simply of a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate. Two $5\frac{1}{2}''$ Perforated Strips bolted to the Plate serve as supports for the frame which rests against two Angle Brackets bolted in appropriate positions on the Plate. A long Perforated Strip (or several Strips bolted together) is attached to the Plate. At the far end an Axle and Slide Piece, or some other marker, can be fixed to ensure that the exposing lamp is placed the same distance away each time. The actual distance is not important but 18 inches will probably be found suitable.

Specially for Photographers
By H. G. Forsythe

The three dishes are for your solutions. On the left is the Developer. The centre dish contains water for rinsing while the right hand dish contains the Fixing Solution. It is useful also to have a measure for making up the solutions, a thermometer, a pair of print tongs and a clock or watch with a second hand for exposure timing.

Having got all your equipment together, the next important question is when and where to work. The kitchen table is a very good place, if permission can be obtained, and after dark a suitable time.

Contact printing paper is not very sensitive to light so there is no need to black out the kitchen entirely. Take care, however, that no bright lights are on and that the curtains are drawn securely. It is wise to cover the table with newspaper in case some chemicals are spilt.

Calling All Bus Spotters

IN November's *M.M.* I asked for your views on the speed that buses should be permitted to travel in the light of the recent raising of the legal maximum speed limit for these vehicles from 30 m.p.h. to 40 m.p.h. Obviously, you did not feel so hot under the collar about this topic as you did in regard to trolleybuses and their future, for not only were there fewer letters, but they all took the same attitude.

By DAVID KAYE

As Christopher Tye, of Stockport, reminds us, "Let us admit that the buses did not, when restricted to 30 m.p.h., keep within that limit—mainly because the buses are capable of doing much more than 30 m.p.h. anyway. By merely putting up the maximum speed of a bus from 30 to 40 m.p.h. it really only made legal what was being carried on for years—that is the illegal speeding of buses." This reader feels there is a better chance of bus companies breaking even now they can provide quicker services with bigger vehicles.

Several other correspondents also linked this relaxation with the increased maximum dimensions of public service vehicles from 30 ft.×8 ft. to 36 ft.×8 ft. $2\frac{1}{2}$ in. G. W. Herbert, of Swansea, writes about the N. & C. Express Company, who run a service between Swansea and Cardiff. It would be difficult for this firm to take advantage of the higher speeds since there are so many hold-ups along the route, and apparently Port Talbot is one of the chief bottlenecks. Similarly, F. R. Whitehead, of Reading, draws attention to the Thames Valley "A" express coach route, which cannot speed up its scheduled 65-minute timing between Staines Bridge and Reading, a distance of 23 miles, because it traverses narrow, winding country roads. M. G. Cory, of Coulsdon, Surrey, sums up the situation by commenting, "Before we start to think about increasing speed, we must have straighter, wider roads with not many traffic signals."

* * * *

The view of Thomas H. H. Cooper, of Thulston, Derbyshire, is that 40 m.p.h. is still not nearly high enough for modern vehicles carrying passengers, but, he adds, he realises that there are many older buses and coaches for which such speeds would be either unattainable or else unsafe. Therefore, he suggests that all buses should be tested and then graded as being capable of 60 m.p.h., 50 m.p.h. and 40

(*Continued on page 133*)

SPANNER TELLS YOU ALL ABOUT

MECCANO'S NEW LOOK

Re-Styled Books Of Models: Extra Parts: Revised Outfits

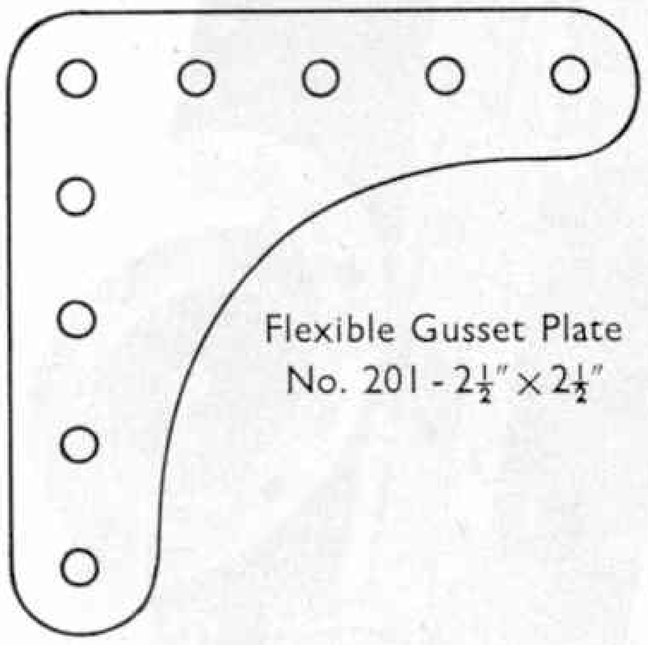
MECCANO in 1962 is better than at any time in its history, for this year has brought the introduction of new Parts, a revised range of Outfits and finally —and perhaps most important of all—a completely new series of Books of Models in an entirely new and revolutionary style. These innovations will add tremendously to the fun and pleasure obtained from model-building, in addition to increasing the scope for models and enhancing their realism.

Some of the new Parts that are being introduced are shown in the illustration below, but before I go into details about them I want to tell you about the splendid new Model Books that have been prepared. These Books have been planned on a completely new basis and are the result of over two years' work by model-builders, technical artists, and the writer of this article.

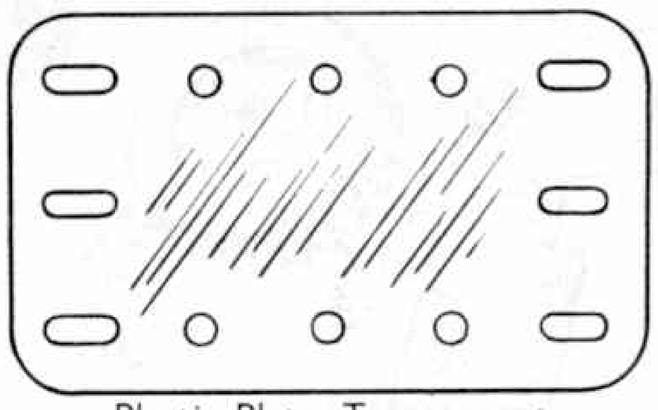
They have been prepared in a style that is completely different from that of any previous Meccano Instructions Books, and their main feature lies in the absence of written instructions. The construction of each model is shown entirely by pictures consisting of photographs and cleverly-prepared perspective and exploded drawings, with the part numbers on or adjacent to the actual Parts used.

Examples of the new presentation are given on the two following pages and you will see from these that the constructional details of the models are clearly and fully

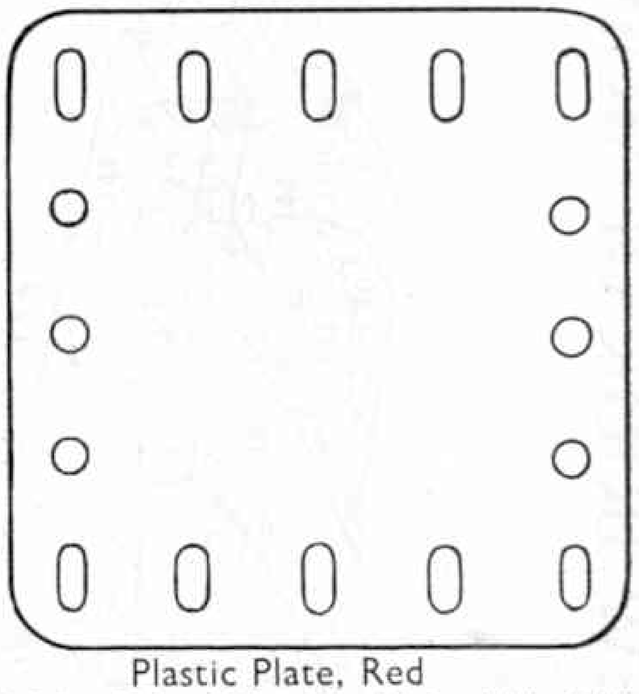
(*Continued on page 114*)



Flexible Gusset Plate
No. 201 - 2½" × 2½"

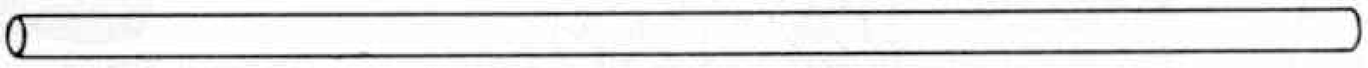


Plastic Plate, Transparent
No. 193 - 2½" × 1½"
No. 193a - 2½" × 2½"
No. 193b - 3½" × 2½"
No. 193c - 4½" × 2½"
No. 193d - 5½" × 1½"
No. 193e - 5½" × 2½"

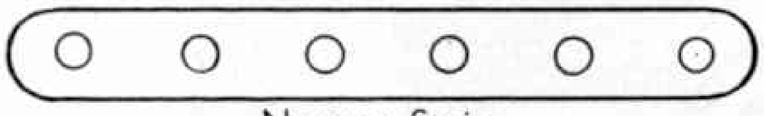


Plastic Plate, Red
No. 194 - 2½" × 1½"
No. 194a - 2½" × 2½"
No. 194b - 3½" × 2½"
No. 194c - 4½" × 2½"
No. 194d - 5½" × 1½"
No. 194e - 5½" × 2½"

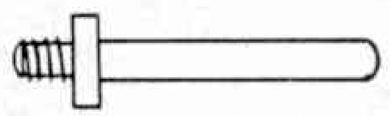
NEW MECCANO PARTS



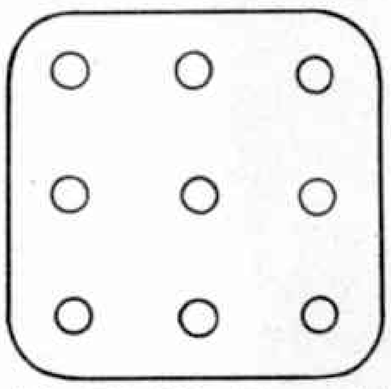
No. 14a Axle Rod - 5½" long



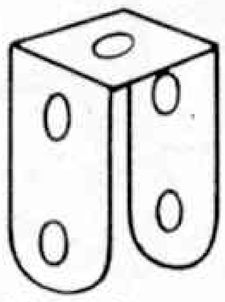
Narrow Strip
No. 235 - 2½" × 11/32"
No. 235a - 3" × 11/32"
No. 235b - 3½" × 11/32"
No. 235d - 4½" × 11/32"
No. 235f - 5½" × 11/32"



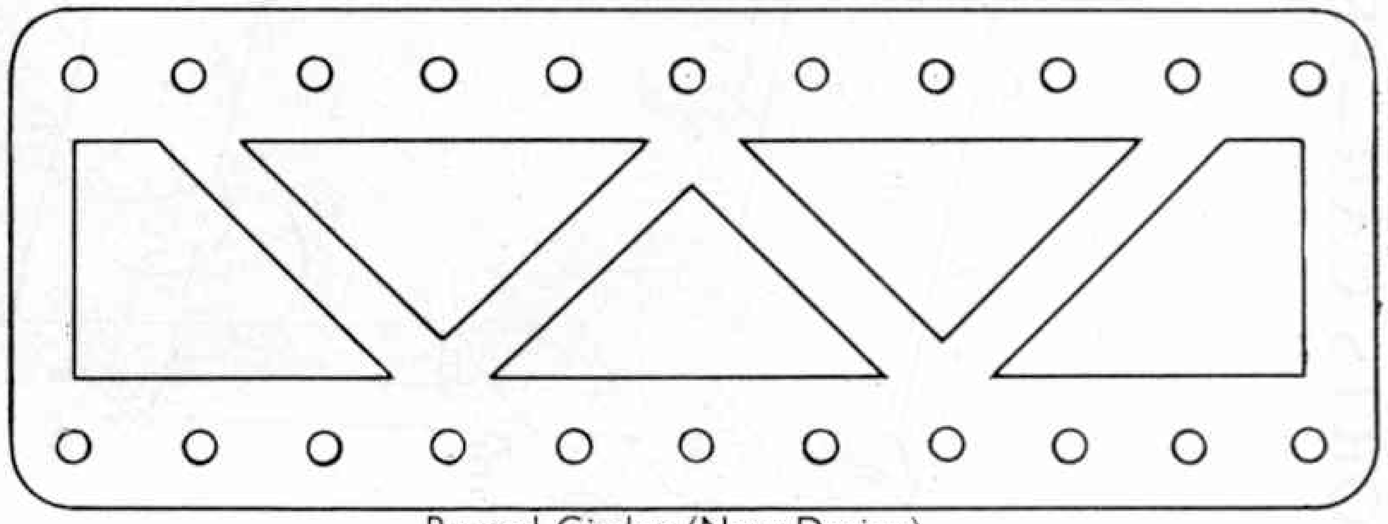
No. 115a - Threaded Pin, Long



No. 74 - Flat Plate - 1½" × 1½"

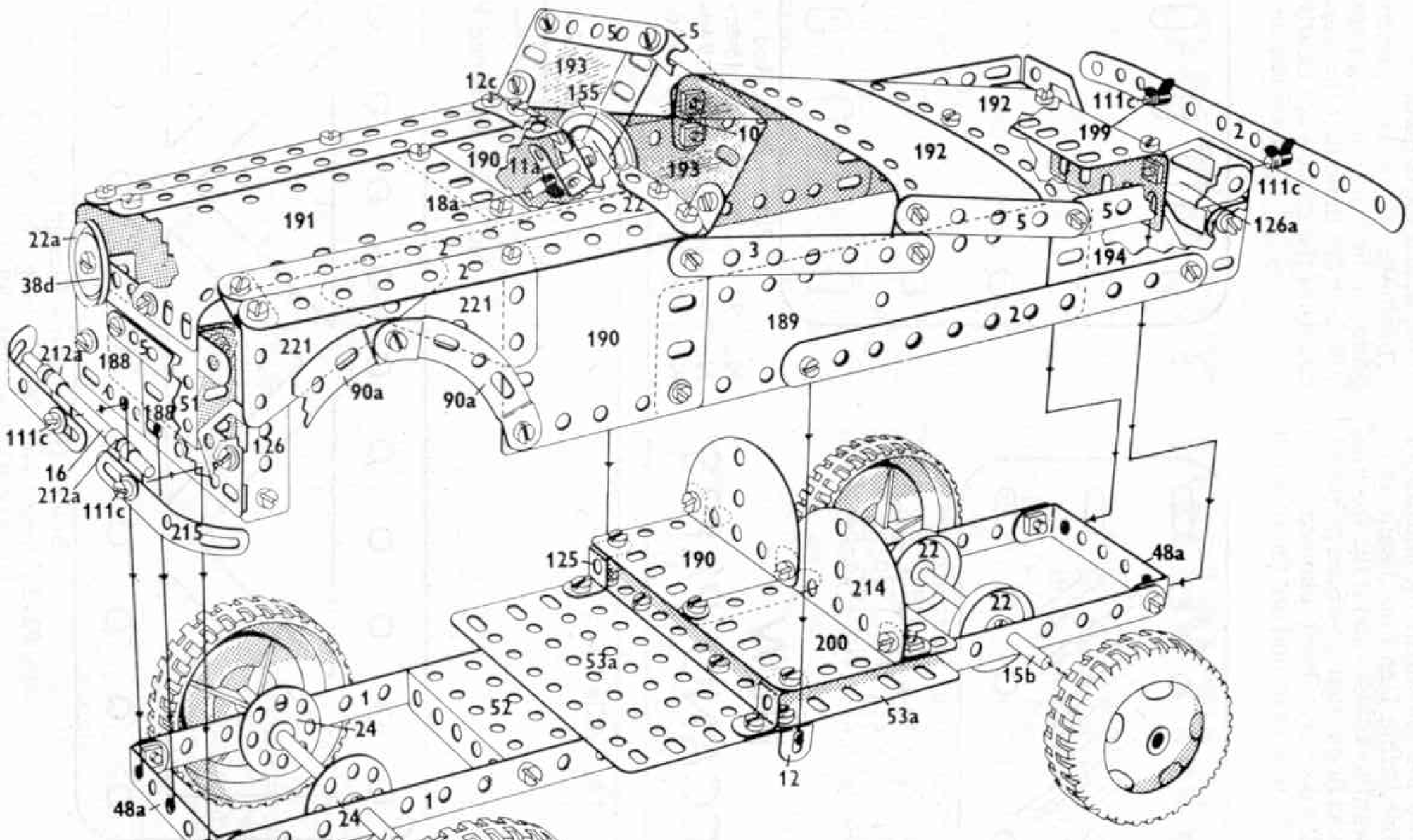


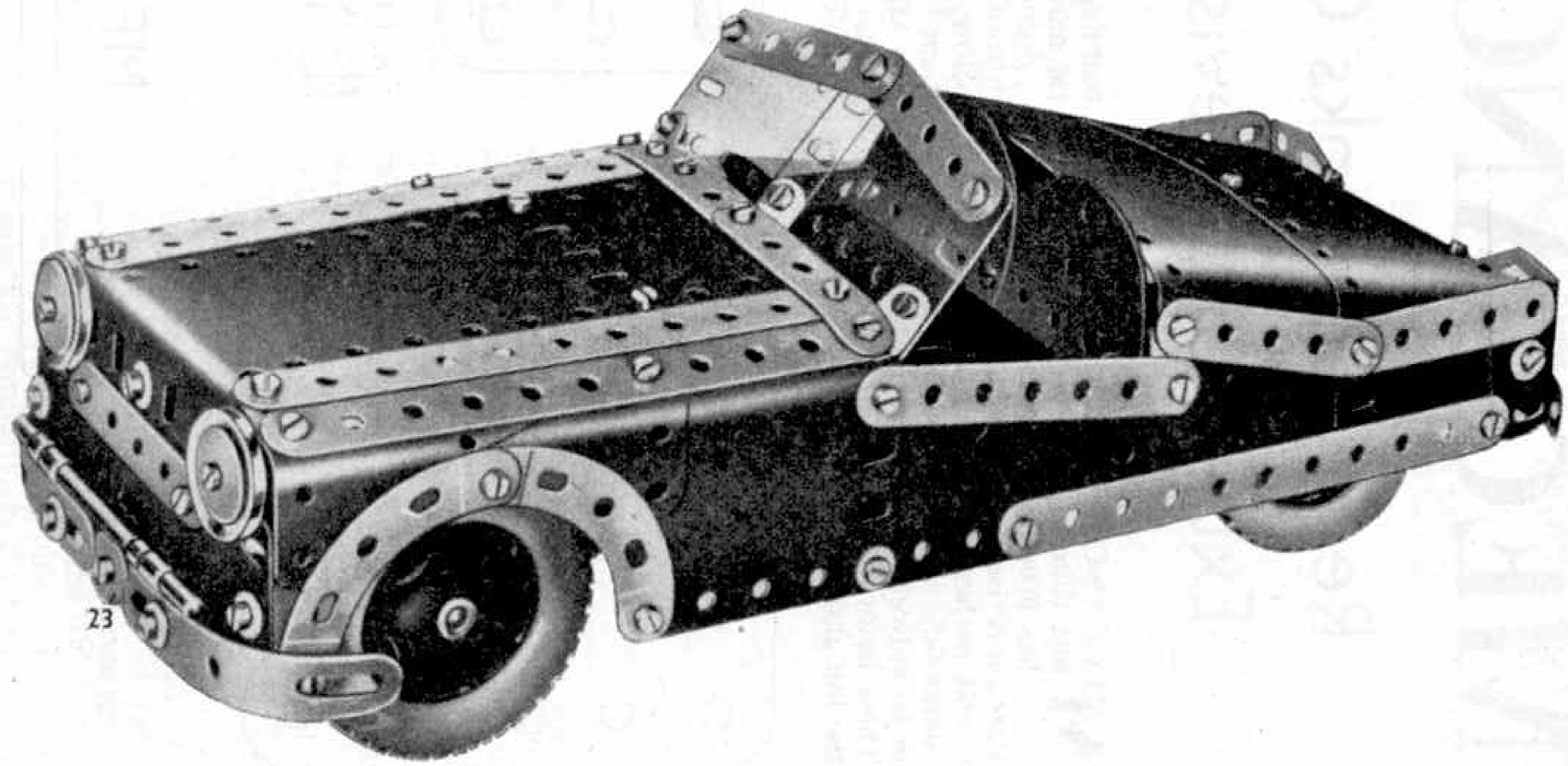
No. 11a
Double Bracket - 1" × ½"



Braced Girder (New Design)
No. 97 - 3½" long
No. 100 - 5½" long
No. 99b - 7½" long
No. 99a - 9½" long
No. 99 - 12½" long

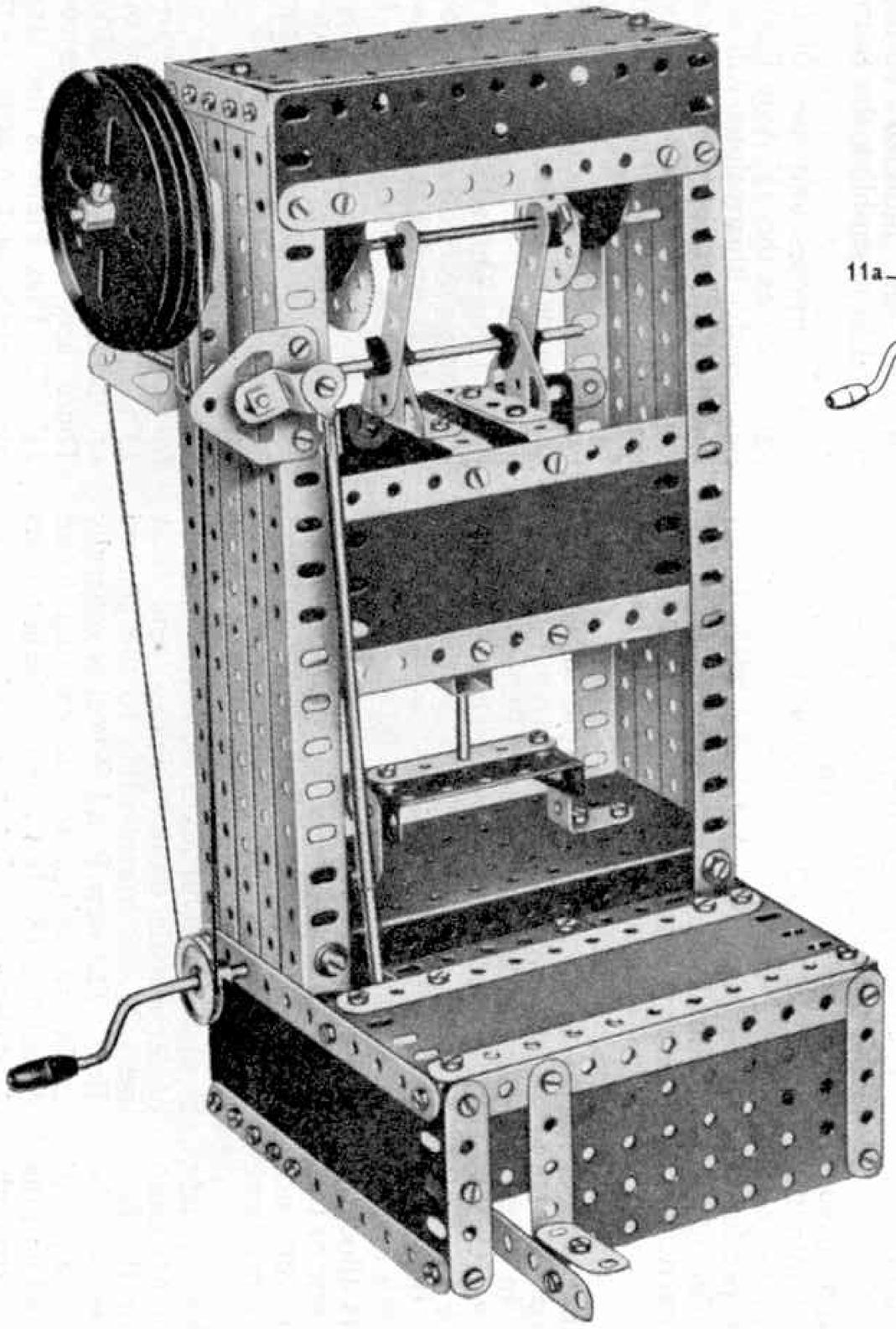
SPORTS CAR—FROM THE NEW BOOK OF MODELS FOR OUTFITS 4, 5 & 6

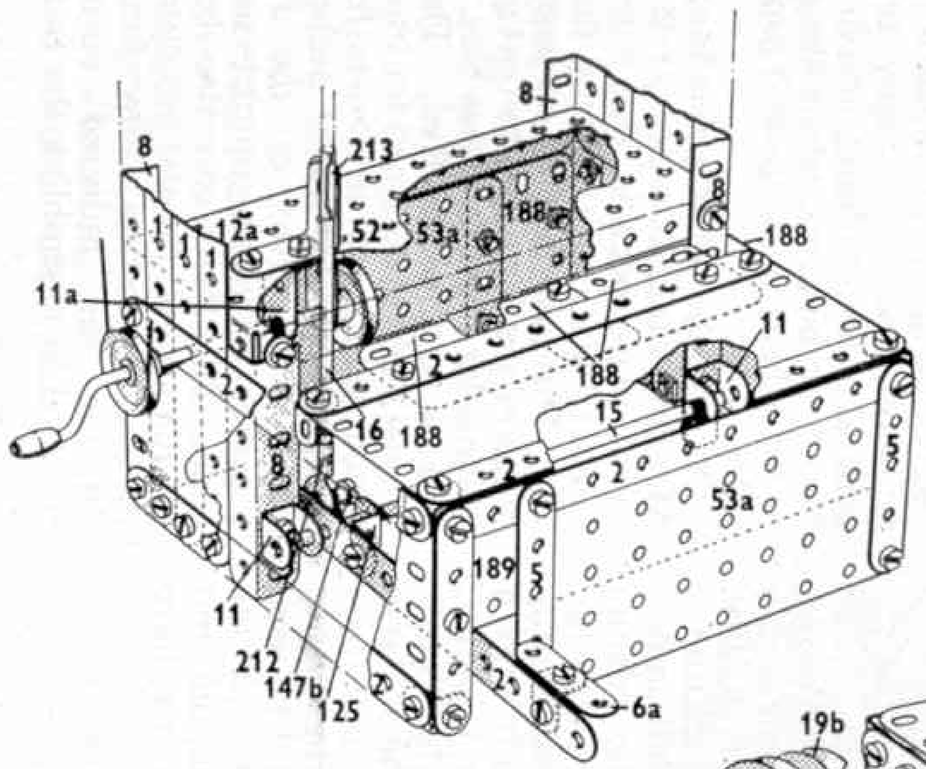


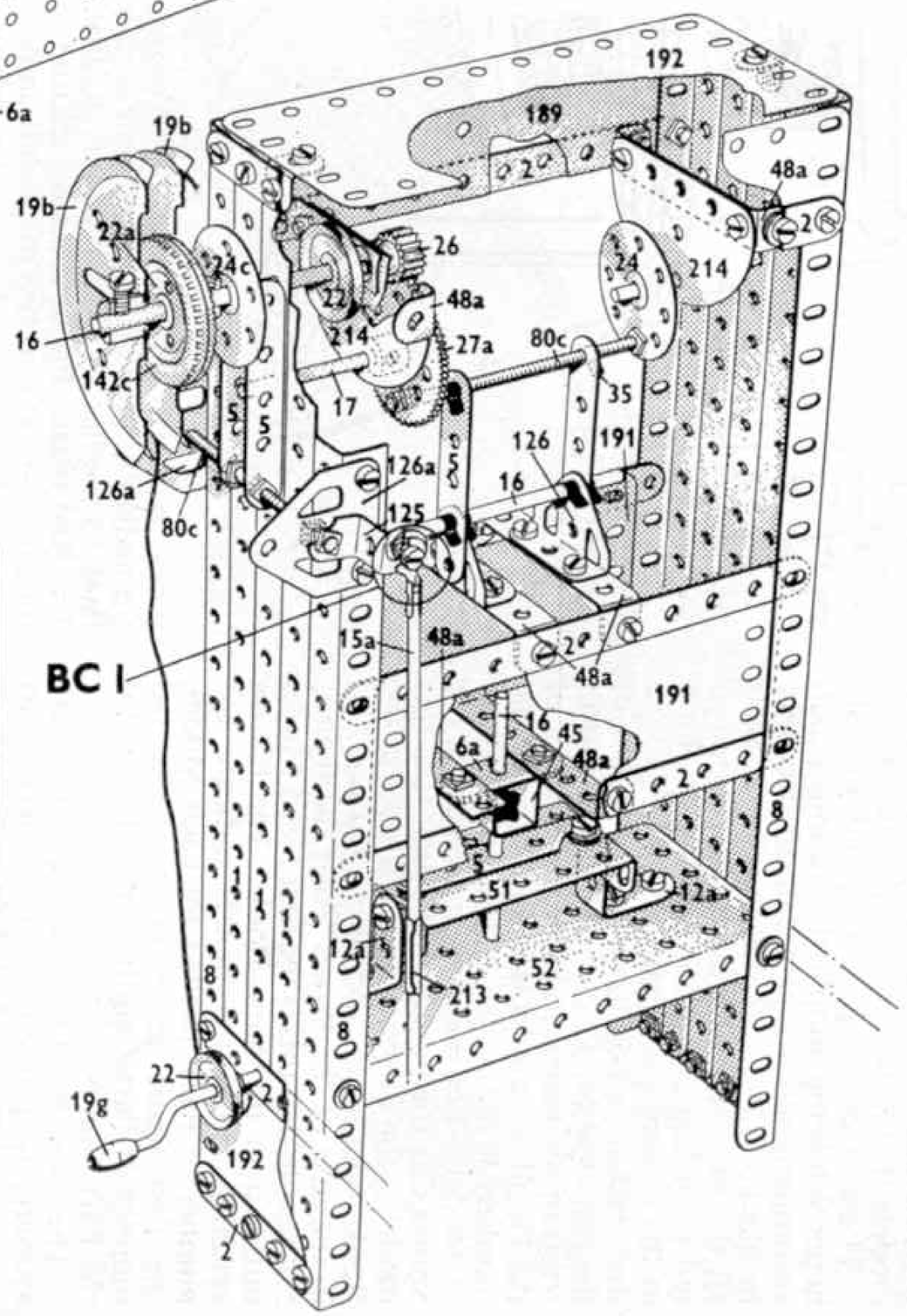


4.15	2	– 1	1	– 52
	7	– 2	2	– 53a
	2	– 3	4	– 90a
	9	– 5	5	– 111c
	4	– 10	2	– 125
	1	– 11a	2	– 126
	9	– 12	2	– 126a
	4	– 12c	1	– 155
	2	– 15b	4	– 187
	1	– 16	2	– 188
	1	– 18a	2	– 189
	3	– 22	4	– 190
	2	– 22a	1	– 191
	1	– 23	2	– 192
	2	– 24	2	– 193
	3	– 35	2	– 194
	92	– 37a	1	– 199
	81	– 37b	1	– 200
	12	– 38	2	– 212a
	2	– 38d	2	– 214
	2	– 48a	2	– 215
	1	– 51	4	– 221

POWER PRESS—A FINE OUTFIT No. 5 MODEL FROM THE NEW BOOKS







5.1					
6	–	1	96	–	37b
14	–	2	14	–	38
10	–	5	1	–	40
2	–	6a	1	–	45
4	–	8	6	–	48a
2	–	11	1	–	51
1	–	11a	1	–	52
9	–	12	2	–	53a
2	–	12a	2	–	80c
1	–	15	1	–	111a
1	–	15a	2	–	125
4	–	16	2	–	126
2	–	17	2	–	126a
2	–	19b	1	–	142c
1	–	19g	1	–	147b
3	–	22	3	–	188
1	–	22a	3	–	189
1	–	24	2	–	191
1	–	24c	4	–	192
1	–	26	2	–	212
1	–	27a	1	–	213
12	–	35	2	–	214
111	–	37a			

illustrated—"blueprints", you could almost call them. Once the knack of reading the drawings is acquired, and this will not take very long, the assembly of the models should be quite easy to follow.

There is one important point to note here. While the sample illustrations which accompany this article are illustrated only in black, in the actual Books of Models all the Part Numbers used are printed in red as an aid to clarification. Now look at the illustrations again and you will see that each is accompanied by a panel of figures. The bolder figures printed just in front of the panels indicate the number of the Outfit the model is built from and the number of the model in the actual Book of Models. For instance in the case of the Sports Car the figures 4.15 mean that this model is the fifteenth No. 4 Model in the Book covering the 4, 5 and 6 Outfits, and in the case of the Power Press the figures 5.1 denote that this is the first No. 5 Model outlined in the same Book. The figures actually within the panels indicate the number of Parts needed for each Model, the first figure given being the actual number of Parts required and the second the Part Number.

The new Books of Models are very attractively printed on high-quality art paper. All the models they contain have been specially designed in our Model-Building Department and most of them incorporate some of the newly-introduced Meccano Parts.

The new Books of Models will cover the following combinations of Outfits: One Book for Outfits 0 and 1; one for Outfits 2 and 3; one for Outfits 4, 5 and 6 and one for Outfits 7 and 8. For Outfit No. 9, there will be a series of ten 6-page Special Model Leaflets numbered 9.1 to 9.10 produced to the same scheme as the Books themselves, and each of these illustrates one large model designed for construction from that Outfit.

So much work, thought and artistic and printing skill has been put into the production of these Books to make them the best Meccano have ever produced that I urge every Model-Builder to go along to his Dealer and ask for particulars.

* * * *

Now for the new Parts that are to appear in the Meccano range. These Parts are, of course, contained in greater or lesser degree in the new 1962 Outfits and all of them should soon be available for separate sale. Some of them are illustrated on the first page of this article, together with the Part Numbers allocated to them. In addition, there are one or two others, illustrations of which were not available at the time these notes were written.

Probably the most exciting development these new additions bring to the Meccano system is the introduction, for the first time, of plastic Plates. These will be available in opaque red and also in transparent plastic. Both the Red and the Transparent Plastic Plates are extremely flexible and can be curved into complete



tubes without any damage whatever. Immediately they are released they spring back to the flat as a result of this quality. The Red Plastic Plates are most useful for forming curved portions of models, and as they are the same colour as the existing metal Flexible Plates they can be used with, and are practically indistinguishable from, the latter, when both are built into a model. It should be made clear, however, that it is not intended that the Plastic Plates should be used for filling in large flat surfaces of structures or that they replace the existing metal Flexible Plates. The metal Flexible Plates should be used for general filling-in purposes, and the Plastic Plates reserved for shaping and filling in any curved surfaces that may have to be reproduced.

The Red Plastic Plates will be obtainable in the following sizes: No. 194, $2\frac{1}{2}'' \times 1\frac{1}{2}''$; No. 194a, $2\frac{1}{2}'' \times 2\frac{1}{2}''$; No. 194b, $3\frac{1}{2}'' \times 2\frac{1}{2}''$; No. 194c, $4\frac{1}{2}'' \times 2\frac{1}{2}''$; No. 194d, $5\frac{1}{2}'' \times 1\frac{1}{2}''$; 194e, $5\frac{1}{2}'' \times 2\frac{1}{2}''$.

The primary use for the Transparent Plastic Plates, of course, is for representing windows, which are required in many kinds of models, such as cabs of cranes, locomotives, bridges of ships, etc. Now, for the first time, you will be able to add this special touch of realism to your models. The Transparent Plastic Plates will be obtainable in the following sizes: No. 193, $2\frac{1}{2}'' \times 1\frac{1}{2}''$; No. 193a, $2\frac{1}{2}'' \times 2\frac{1}{2}''$; No. 193b, $3\frac{1}{2}'' \times 2\frac{1}{2}''$; No. 193c, $4\frac{1}{2}'' \times 2\frac{1}{2}''$; No. 193d, $5\frac{1}{2}'' \times 1\frac{1}{2}''$; No. 193e, $5\frac{1}{2}'' \times 2\frac{1}{2}''$.

Two other new Parts that will be much welcomed by more advanced model-builders are a large diameter tyred Road Wheel (Part No. 187b) and a modern style Steering Wheel (Part No. 185a). Both will form very useful accessories for builders of large-scale model vehicles, and their use will add considerably to the general effect. The new Road Wheel is generally similar in design to the existing Road Wheel No. 187, but whereas the latter has a diameter of $2\frac{1}{2}''$, the new part is $4\frac{1}{4}''$ in diameter. It is made in plastic, with a finely moulded representation of a heavy tread tyre, and is finished in blue and grey. The new Steering Wheel has a diameter of $2\frac{1}{2}''$ and has three arms as against the four arms of the existing smaller Steering Wheel No. 185.

* * * *

Still another innovation is the introduction of Narrow Perforated Strips $\frac{11}{32}''$ wide. Apart from the fact that they are only about half the width of the ordinary Strips, they are similar to the latter in other respects. They are obtainable in a range of different lengths and will be found very suitable for use as bracing in girder work, jibs of cranes etc., as their narrow width gives better proportions and a much lighter and neater effect than when the standard width Strips are used for these purposes. There are, of course, many other applications for the Narrow Strips, such as in forming the window and windscreen framing of motor vehicles, and in the building up of radiator grilles. In addition, there are many instances in general model-building, and in the assembly of mechanisms, where the availability of these Narrow Strips will prove of great value.

Among the other new additions to the Meccano range is a new style of flexible metal plate bearing the name Flexible Gusset Plate, and carrying the Part No. 201. This is illustrated on page 111. It is made of similar metal to that used for the Triangular Flexible Plates Nos. 221 to 226, and is enamelled Red. The Flexible Gusset Plate is designed for use in shaping the curved edges of structures, for example, the semi-circular wheel arches of some motor-cars. Two of the Parts used together will give a complete semi-circular edge. The Parts can also be used for plating around tubular structures, such as the decking around a ship's funnel and for forming the radiused corners often required in assembling the framework of models.

The purposes and uses of other new parts such as the $5\frac{1}{2}''$ Axle Rod, listed in this month's illustrations, will be obvious, and their appearance in the range will do much to increase the facilities available to the model-builder. The new Strip Plate, $7\frac{1}{2}'' \times 2\frac{1}{2}''$, No. 195, is an addition to the two existing Strip Plates Nos. 196 and 197, and is made of similar metal. It is finished in Red.

The Long Threaded Pin (Part No. 115a) is a longer version of the Threaded Pin (No. 115) and has been asked for by innumerable correspondents. It can be used to form long stub axles, and has numerous uses in mechanism building, while it will also serve as a handle for a handwheel when fixed to a 3" Pulley or other suitable part.

Many correspondents have also asked for a smaller version of Part No. 72, $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flat Plate, one of the most useful of the various Meccano Flat Plates. There are, however, cases where the $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flat Plate is too large to use conveniently, and in order to fulfil these needs we have now (*Cont. on page 132*)

Easy Model-Building

MECCANO SPORTS MOTOR CAR

Spanner's Special Section for the Juniors

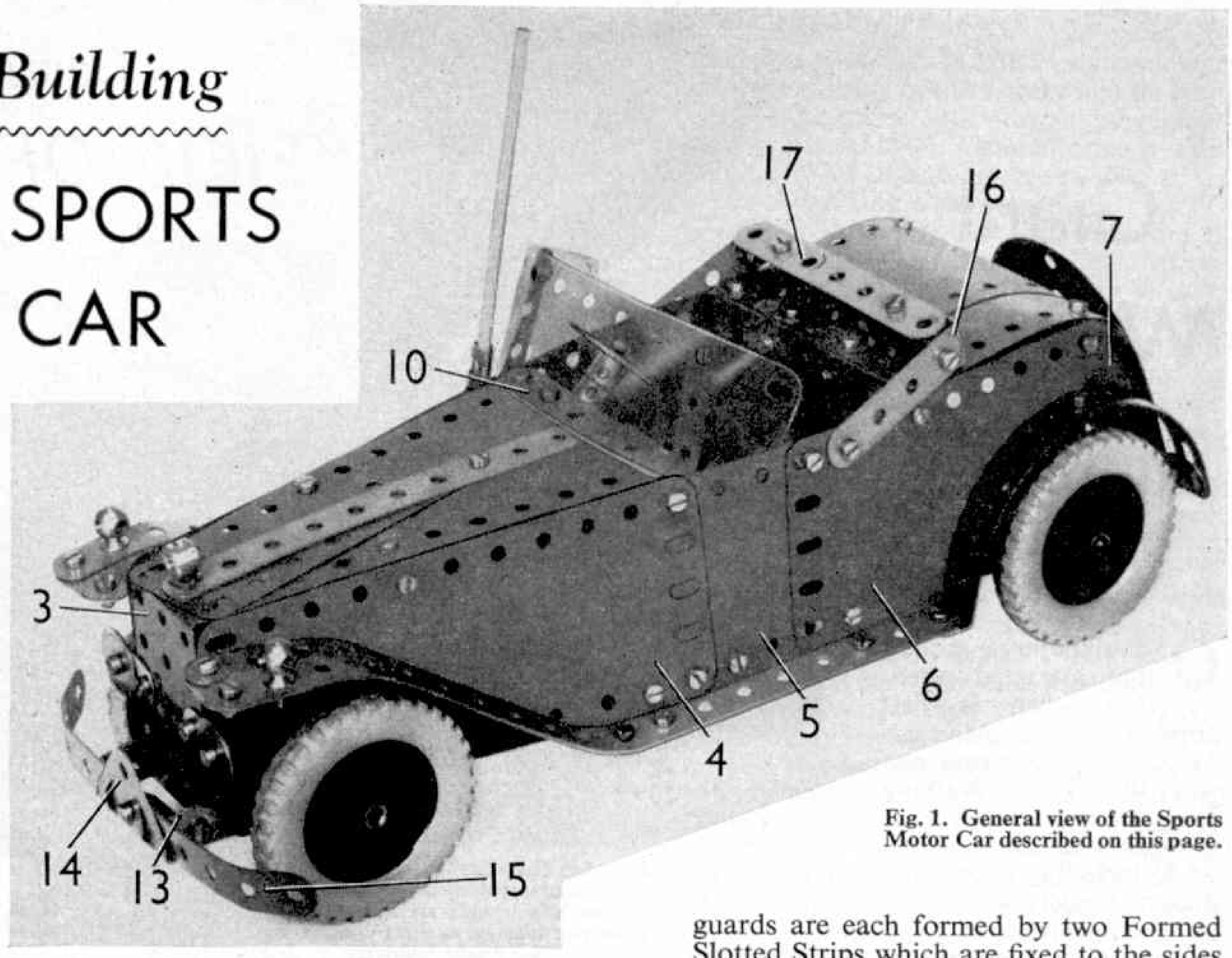


Fig. 1. General view of the Sports Motor Car described on this page.

AN attractive model for the younger Meccanoite is the fine Sports Car shown in Fig. 1.

In building this model it is best to start with the chassis, which is formed from two $12\frac{1}{2}''$ Strips 1, bent as shown in the illustration. These are then joined together by two $3\frac{1}{2}''$ Strips 2 fixed to them by Angle Brackets. A $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate 3 is then fixed to the Strips, also by Angle Brackets, making sure that one hole of the Strips is left protruding at the front. The purpose of this will be explained later. The sides of the car are formed by a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate 4, a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate 5 and a $4\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate 6, which also has a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Triangular Flexible Plate 7 bolted to it. A $3\frac{1}{2}''$ Strip 8 is then fixed by Angle Brackets between the sides, six holes from the back, and between this Strip and the Strip 1 are bolted two of the new $3\frac{1}{2}'' \times 2\frac{1}{2}''$ Red Plastic Flexible Plates 9 (Part No. 194b) which are also held by Angle Brackets.

The top of the bonnet is filled in by two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates supported by a 3" Strip 10 and the top of the $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate 3, and fixed to the sides by Angle Brackets. A $5\frac{1}{2}''$ Strip runs the length of the bonnet.

Next the mudguards and running board are fitted. A $9\frac{1}{2}''$ Strip 11 is bent to the shape shown in the photograph and fitted to the side of the car by Angle Brackets. A $5\frac{1}{2}''$ Strip 12 is then fixed to the Strip after being curved to the appropriate shape, and is fitted so that it fills in the space between the Strip 11 and the side of the bonnet. The Strips are connected at the front by a Fishplate. The rear mudguards are each formed by two Formed Slotted Strips which are fixed to the sides by two Angle Brackets.

The windscreen consists of one of the new $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Transparent Flexible Plates (Part No. 193d) supported by two $2\frac{1}{2}''$ Narrow Strips (Part No. 235). The seats are two $2\frac{1}{2}''$ U Section Curved Plates, which should be shaped so that the flat planes are at right angles to each other. They are then fixed to the Strip 8 by Angle Brackets.

Next the front bumper is fitted. A $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 13 is bolted to the two protruding holes of the $12\frac{1}{2}''$ Strips 1, and to the Double Angle Strip 13 is bolted a Trunnion 14 and a $5\frac{1}{2}''$ Strip 15, which is slightly bent at the ends. Next, the folding hood is fitted. For this a $3\frac{1}{2}''$ Double Angle Strip 16 has a $3\frac{1}{2}''$ Strip 17 fixed to it by two Angle Brackets. A 2" Strip is fitted to each of the lugs of the Double Angle Strip and these are then bolted to the sides.

The steering wheel is a Bush Wheel fixed on a 1" Rod held in an Obtuse Angle Bracket 18 by two Collars. The spare wheel cover consists of two Semi-Circular Plates bolted together to form a disc and then fixed to the Strips. Next the wheels are fitted. The rear wheels are fixed on a 5" Rod and the front wheels are mounted on a $3\frac{1}{2}''$ Rod, being spaced from the chassis by 1" Pulleys without boss. Now all that remains to be done is to fit the headlamps, which are $\frac{3}{4}''$ Washers fixed to Fishplates and bolted to the $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plates. The small lamps on the front mudguards are Handrail Supports and the small (*Cont. on page 132*)

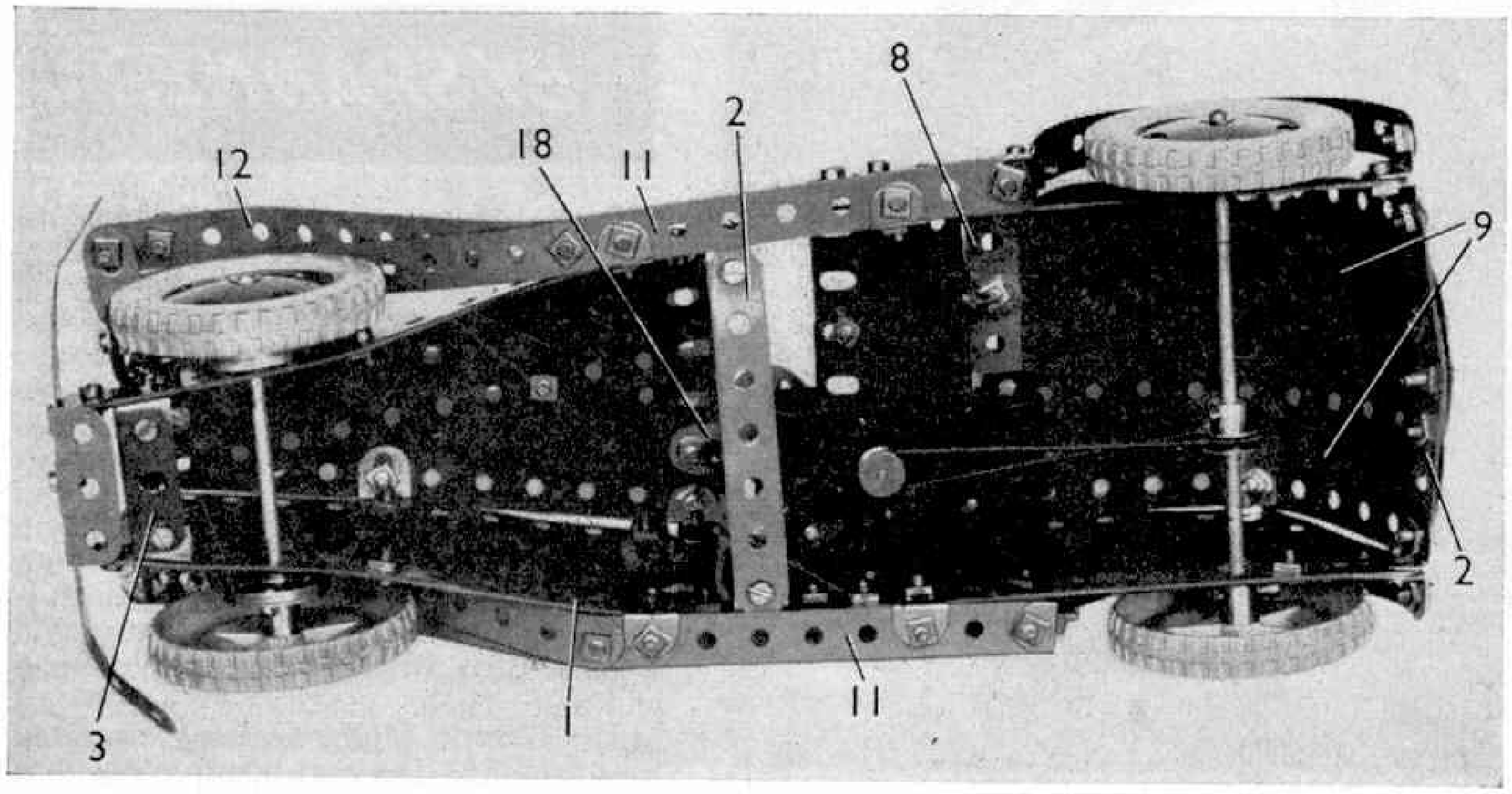


Fig. 2. This underneath view of the Sports Car shows how the Motor is fitted, and the drive to the back wheels.

Continuing . . .

"PICK OF THE POPS"

Giant Walking Dragline

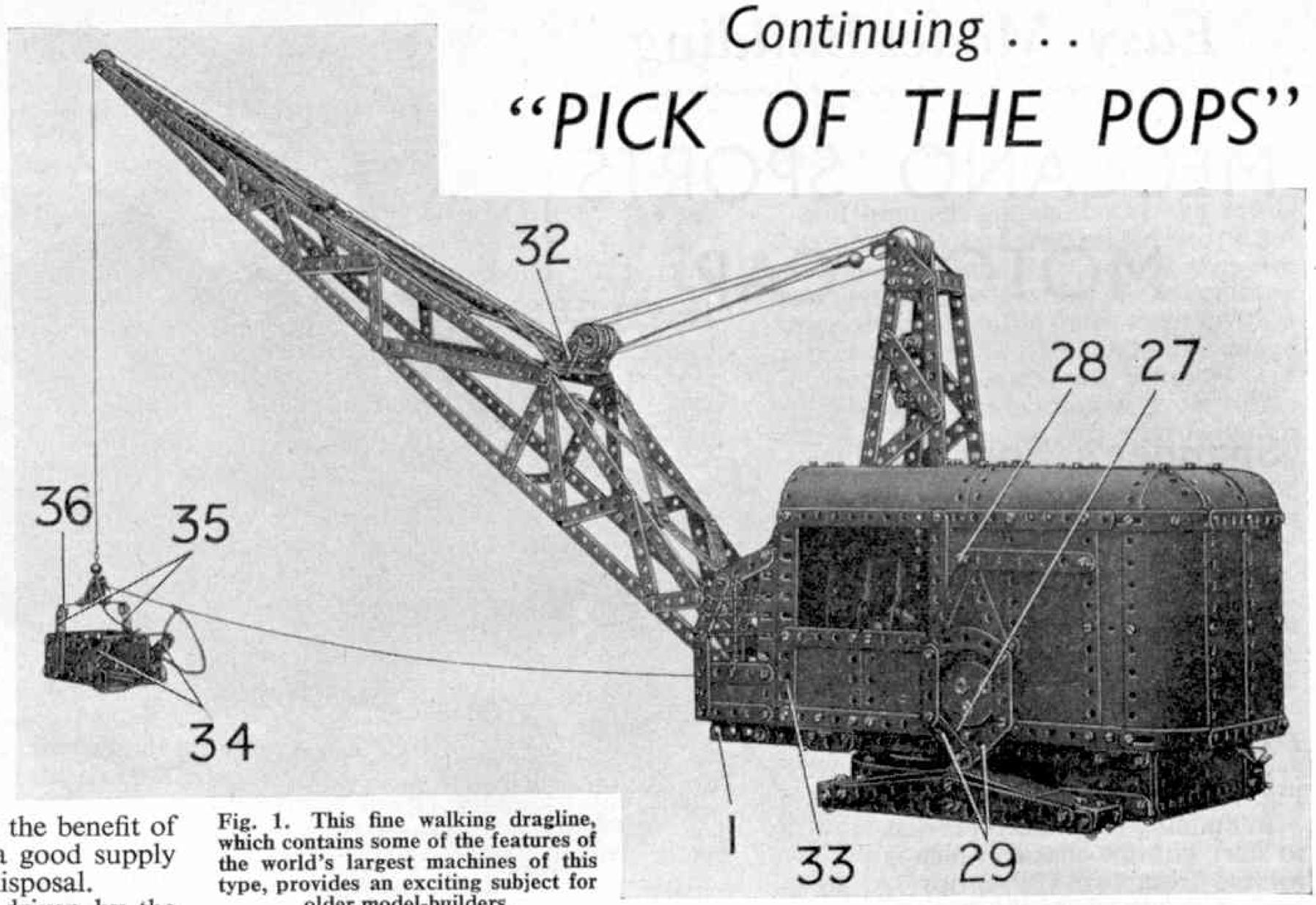


Fig. 1. This fine walking dragline, which contains some of the features of the world's largest machines of this type, provides an exciting subject for older model-builders.

ONE of the larger models that attracted attention when it first appeared in the *Meccano Magazine* some years ago was the Giant Walking Dragline shown in Fig. 1. I think that it is worth while including it again for the benefit of present readers who have a good supply of Meccano parts at their disposal.

The original model was driven by the old E20R Electric Motor, but readers who have the E15R Motor can use this as a substitute.

The cab base is made by bolting three $5\frac{1}{2}'' \times 3\frac{1}{2}''$ Flat Plates between two $12\frac{1}{2}''$ Angle Girders 1. The assembly is strengthened by a $5\frac{1}{2}''$ Angle Girder at the rear, and by a similar Girder 2 (Fig. 2). A Flanged Disc from a Ball Thrust Race is bolted to the underside of the base, and the Ball Cage is carried between the Flanged Disc and a $3\frac{1}{2}''$ Gear mounted between nuts on four $\frac{3}{4}''$ Bolts that are held by nuts in a 4" Circular Plate. This Plate is bolted to two $5\frac{1}{2}''$ Strips fixed across a Circular Girder 4, and a second Circular Girder is attached to the first by Fishplates. A $1\frac{1}{2}''$ Rod fixed in the $3\frac{1}{2}''$ Gear is passed through the bearing unit, and the cab is held in position by a Collar.

The framework that carries the walking shafts consists of two columns 5 and 6. Column 5 is made by bolting a $5\frac{1}{2}''$ Angle Girder and a $5\frac{1}{2}''$ Strip to the base, and column 6 consists of two $5\frac{1}{2}''$ Angle Girders. A $3'' \times 1\frac{1}{2}''$ Flat Plate is fixed to each column, and they are connected at the top by $5\frac{1}{2}''$ Strips.

An E15R or E20R Electric Motor is bolted to the rear of the base, and a $\frac{3}{4}''$ Pinion on the armature shaft meshes with a 50-tooth Gear on a $2\frac{1}{2}''$ Rod 7 (Fig. 3). A Worm on this Rod is in constant mesh with a 57-tooth Gear on a Rod 8, which is mounted in a $1'' \times 1''$ Angle Bracket bolted to the Motor, and in a $2\frac{1}{2}''$ Flat Girder fixed to a $2\frac{1}{2}''$ Angle Girder that is also bolted to the Motor side-plate. Rod 8 carries a $\frac{1}{2}''$ Pinion 9 and a $\frac{3}{4}''$ Sprocket 10.

The drive to the walking motion is taken from Pinion 9 to a 57-tooth Gear on a $6\frac{1}{2}''$ Rod 11. This Rod is mounted in $1\frac{1}{2}''$ Strips bolted to the columns 5 and 6, and it is arranged so that it can slide about $\frac{1}{4}''$ in its bearings to bring the Gear into mesh with Pinion 9 when it is required to engage the drive. The sliding movement

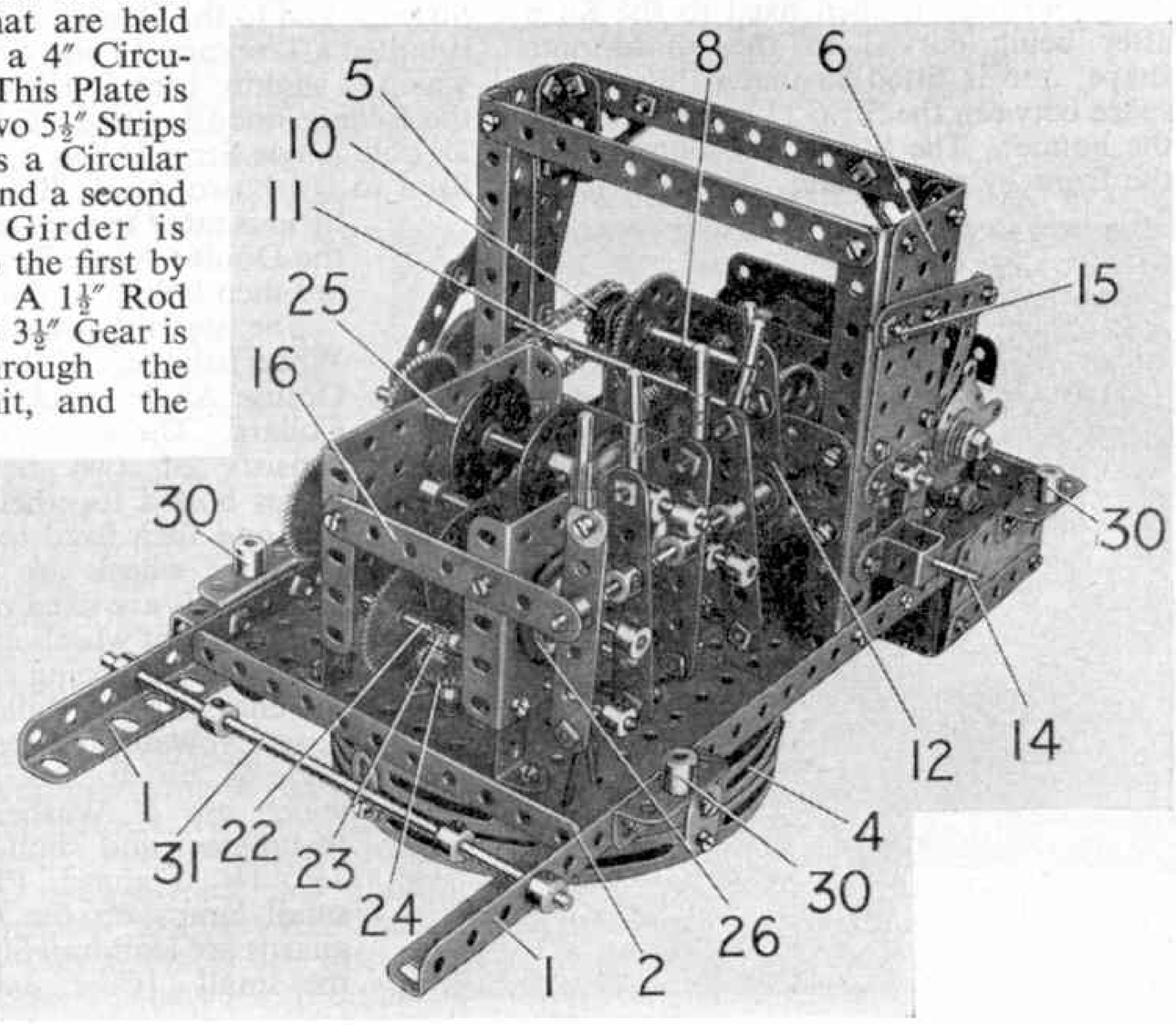


Fig. 2. The dragline with the body removed to reveal the levers controlling the four-movement gear-box.

BY SPANNER

of Rod 11 is controlled by a lever 12. This consists of a Crank extended by a $2\frac{1}{2}''$ Strip and fitted with a Rod and Strip Connector, and it is fixed on a $2\frac{1}{2}''$ Rod mounted in $1\frac{1}{2}''$ Flat Girders bolted to the column 6. A Coupling on the Rod, between the Flat Girders, is fitted with a $\frac{3}{8}''$ Bolt, and the head of this Bolt engages between the boss of the 57-tooth Gear and a Collar on Rod 11. 1 $\frac{1}{2}''$ Pinion 13 on Rod 11 is in constant mesh with a 57-tooth Gear on the main walking shaft, which is an 8" Rod 14 mounted in $1\frac{1}{2}''$ Strips and Double Bent Strips bolted to columns 5 and 6.

The Electric Motor switch is operated by a lever 15. The gear-box (see Fig. 3) is

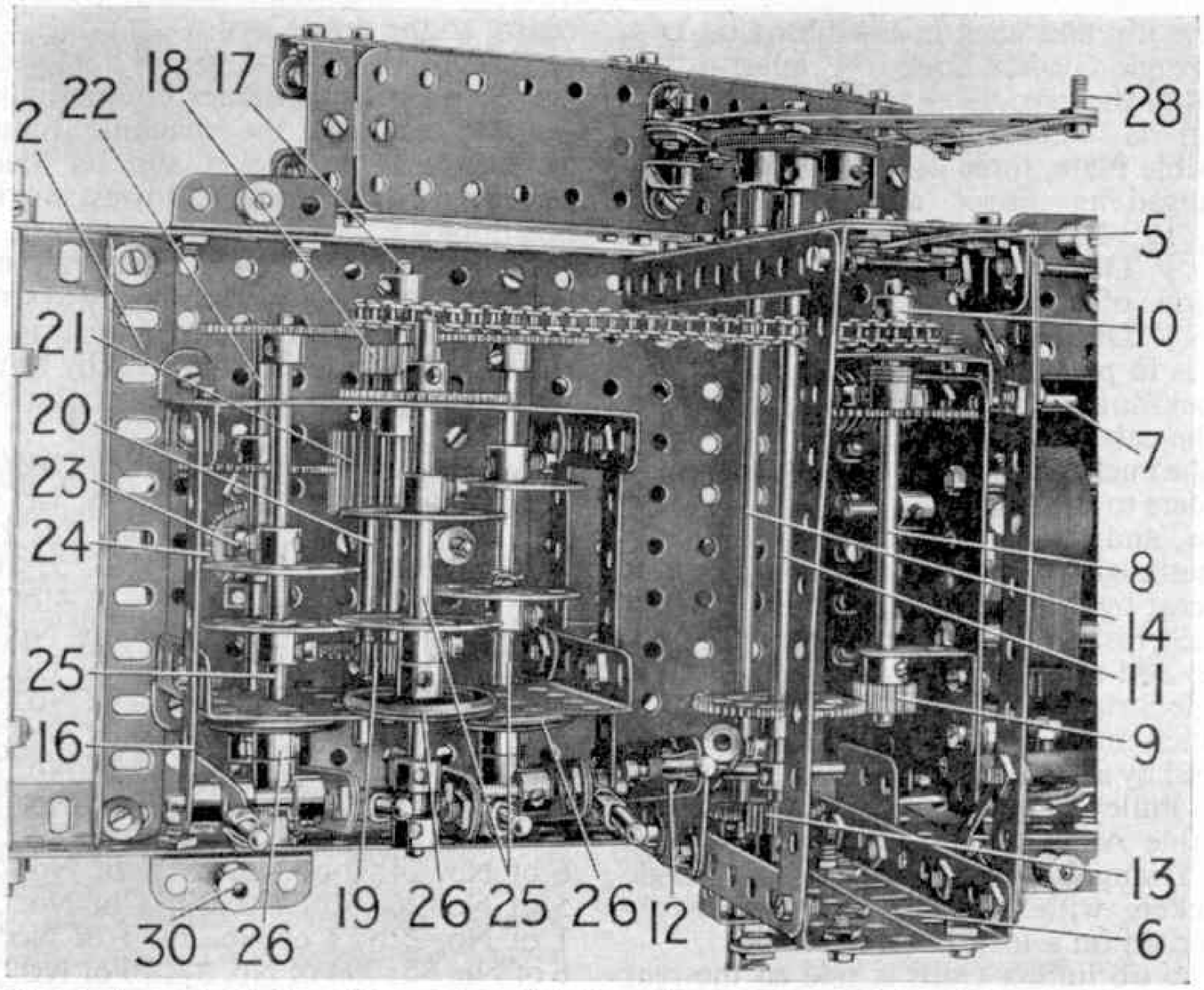


Fig. 3. An overhead view of the cab base that shows the arrangement of the winding drums in the gear-box.

made by connecting two $3\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plates together at each end by a $3\frac{1}{2}''$ Strip 16 and a $2\frac{1}{2}''$ Strip. The $2\frac{1}{2}''$ Strip is removed in Fig. 3 in order to show the gears clearly. The gear-box is attached to the cab base by two $1'' \times \frac{1}{2}''$ and two $1'' \times 1''$ Angle Brackets.

The drive from Sprocket 10 is taken by Chain to a $\frac{3}{4}''$ Sprocket on a Rod 17 mounted centrally in the Flanged Plates. This Rod is fitted with a $\frac{3}{4}''$ Pinion 18 and a $\frac{1}{2}''$ Pinion 19. Pinion 19 is in constant mesh with a 57-tooth Gear on a Rod 20, which carries also a $\frac{3}{4}''$ diam. $\frac{3}{4}''$ face Pinion 21. The latter engages a 50-tooth Gear on a slidable Rod 22. The $\frac{1}{2}''$ Pinion 23 is fixed on the Rod and is located centrally over a $\frac{3}{4}''$ Contrate 24. The Contrate is fixed on a 2" Rod mounted in the cab base and in a $1\frac{1}{2}''$ Strip 25 that is attached to the base by $\frac{1}{2}''$ Bolts, so that it is located beneath the Ball Thrust Race Flanged Disc. The Contrate is spaced from the base by Washers so that it engages accurately with Pinion 23, and a $\frac{1}{2}''$ Pinion on the lower of the 2" Rod is in constant mesh with the $3\frac{1}{2}''$ Gear 3. Pinion 23 can be engaged with either side of the Contrate to provide a reversible drive for the slewing motion.

The remaining three drives of the gear-box are each engaged by sliding a Rod 25 so that a 50-tooth Gear on the end of the Rod engages with Pinion 18. Each of the Rods 25 is fitted with a 1" Pulley and Rubber Tyre 26, two Bush Wheels that form the winding drum, and two Collars on the outer end of the Rod.

The sliding Rods are controlled by levers formed by 3" Strips extended by Rod and Strip Connectors. Each lever is pivoted between Collars on a Rod mounted in the end holes of Strips 16, and carries a Bolt held by two nuts in the 3" Strip. The bolt heads engage between the Collars at the ends of the Rods.

The lever controlling the slewing drive is held vertically by a $2\frac{1}{2}''$ Driving Band looped over a bolt in the end hole of the lever and the base of the cab. Each of the levers operating the remaining three sliding shafts has a $2\frac{1}{2}''$ Driving Band looped between the gear-box and a bolt in the lever, so that it forces the Rubber Ring on the Pulley against the side of the gear-box to act as a brake. First movement of the lever releases the brake and its Rod is free to rotate, but further movement brings the 50-tooth Gear into mesh with Pinion 18 to engage the drive.

Each walking shoe consists of two $7\frac{1}{2}''$ Angle Girders joined at their ends and at the centre by $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips. The central Double Angle Strip is connected to the Girders by Fishplates and $3\frac{1}{2}''$ Strips, and the shoe is completed by two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates attached to Fishplates bolted to the end Double Angle Strips. The shoes are operated by Triple Throw Eccentrics fixed to the ends of Rod 14. A $2\frac{1}{2}''$ Stepped Curved Strip 27 (Fig. 4) is bolted to the strap of each eccentric and is linked to a further curved strip by two 2" Strips. Two 3" Strips are connected at their upper ends by a $\frac{3}{8}''$ Bolt 28, and two 2" Slotted Strips 29 are arranged so that a 1" Rod can be passed through their end holes and the eccentric strip and through Angle Brackets bolted to the shoe.

The cab base is completed by fitting a box at the rear to house counterbalance weights, and the body bearer brackets. The sides of the box are $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates, fitted at their lower edges with $2\frac{1}{2}''$ Angle Girders, and the bottom is a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flat Plate. The front is a $5\frac{1}{2}''$ Flat Girder bolted to a $5\frac{1}{2}''$ Angle Girder, and the rear is a $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate. The body bearer brackets are $1\frac{1}{2}''$ Angle

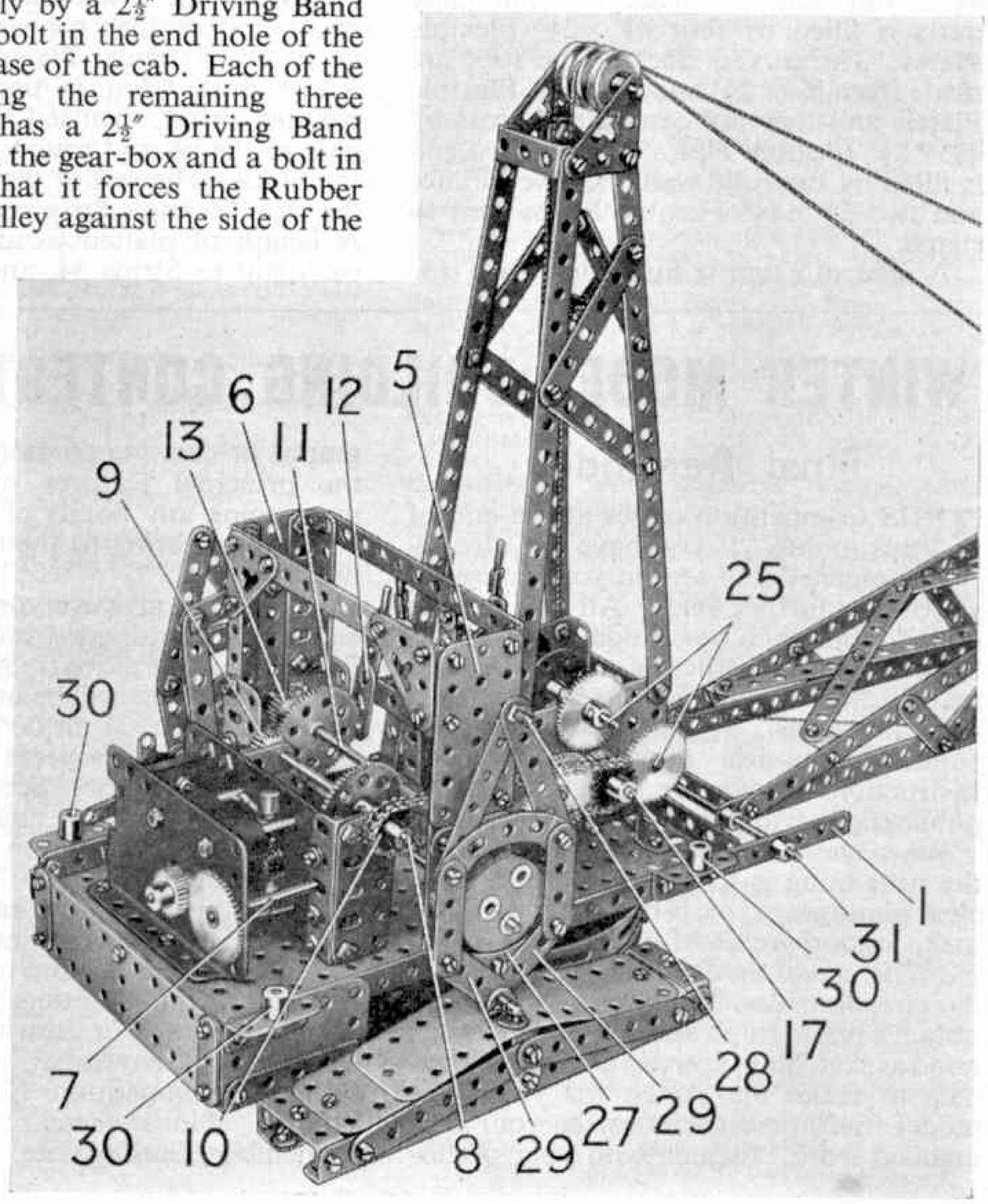


Fig. 4. The position of the E15R or E20R Electric Motor and the construction of the walking shoe and eccentric are shown clearly in this view.

Girders and each is fitted with a Rod Socket 30.

The sides of the jib are each made from six 12½" Strips bolted together as shown in Fig. 1. A vertical 3½" Strip is fixed between the apex and the base and bracing Strips of various lengths are fitted. The sides are connected together by a Double Bracket at the jib head, by two 2½" × ½" Double Angle Strips at the ends of the vertical 3½" Strips, and by a 3" × 1½" Double Angle Strip at the base of the jib. The complete jib pivots between Collars on a Rod 31 seen in Fig 4. Three 1" Pulleys are mounted on a 2" Rod that passes through 1" × ½" Angle Brackets 32 (Fig. 1).

The side of the cab seen in Fig. 1 is made by bolting two 9½" Strips to a 5½" Angle Girder 33. This side is filled by two 2½" × 2½", one 5½" × 1½" and two 5½" × 2½" Flexible Plates, arranged to leave a gap to allow access to the control levers. The edges of the Plates are braced by Strips. The other side is constructed similarly, but the 2½" × 2½" Plates are replaced by 5½" × 2½" Flexible Plates to fill the side in completely.

A vertical 5½" × 2½" Flexible Plate is attached to each of the Angle Girders 33, and these Plates are connected at their upper ends by a 2½" × 2½" Flexible Plate. The front is completed by two Semi-Circular Plates and two 2½" × 1½" Flexible Plates. The sides are connected at the rear by Formed Slotted Strips joined by 4½" Strips, and the space between these parts is filled by four 5½" × 2½" Flexible Plates. The curved sides of the roof are made from 5½" × 2½" and 4½" × 2½" Flexible Plates, and they are connected across by 4½" × 2½" Flexible Plates. The curved end is filled by two 1 11/16" radius Curved Plates and two 2½" × 1½" Flexible Plates bent to shape.

A control cabin is fitted on either side of the jib, and each is assembled on two 4½" Angle Girders bolted 1½" apart at the front of the cab. Each side of the control cabin is assembled from a 2½" × 1½" Flexible Plate, three 2½" and two 2" Strips arranged as shown, and the roof is a 2½" × 1½" Flexible Plate attached to a 1½" × ½" Double Angle Strip. The lower section of the front is filled by three 1½" × ½" Double Angle Strips. When the cab is in position on the base a 3½" Strip is lock-nutted to each of the Bolts 28 and to the cab side.

The bucket is made by bolting 3½" Angle Girders to the edges of a 3½" × 2½" Flexible Plate, and the sides are 2½" × 1½" Flexible Plates edged by Strips, and connected at the rear by a 2½" × 1½" Flanged Plate. Two 2½" Strips 34 are bolted tightly to the sides and are joined by a 2½" × ½" Double Angle Strip. Two further 2½" Strips 35 are pivoted on lock-nutted bolts and these are linked by a 2½" × ½" Double Angle Strip 36. The Pulley assembly is attached to this Double Angle Strip and consists of two 1" Triangular Plates fixed to Angle Brackets with a ½" loose Pulley freely mounted on a lock-nutted ½" Bolt.

The jib luffing Cord is tied to the rear winding drum and is led over the outer pair of Pulleys at the top of the tower and the outer ones on the jib. The end of the Cord is fitted with a small Hook and this is attached to a Fishplate on the tower. The hoisting Cord is fastened to the upper winding drum and is led round the central Pulleys in the tower and the jib, and a small Hook is then slipped over a ½" Bolt in the 1" Triangular Plates.

The drag Cord is tied to the front winding drum, then led out through the base of the jib and round the ½" Pulley in the block. The end of the Cord is tied to the Double Angle Strip between Strips 34. A length of plaited Cord is fastened at each end to Strips 34, and is tied at the centre to the drag Cord.

The box at the rear of the base should be filled with suitable counterbalance weights, so that the machine remains stable when the bucket and its load is hoisted with the jib in its lowest working position.

The walking motion of the dragline is arranged so that the machine always steps backwards. Steering and travel in the reverse direction, are controlled by turning the cab and jib bodily on the circular base.

Parts required to build the model Walking Dragline: 12 of No. 1; 6 of No. 1a; 6 of No. 1b; 14 of No. 2; 10 of No. 2a; 23 of No. 3; 20 of No. 4; 37 of No. 5; 16 of No. 6; 9 of No. 6a; 2 of No. 8; 4 of No. 8b; 8 of No. 9; 5 of No. 9a; 3 of No. 9d; 5 of No. 9f; 13 of No. 10; 1 of No. 11; 22 of No. 12; 3 of No. 12a; 4 of No. 12b; 1 of No. 13a; 2 of No. 14; 4 of No. 15a; 3 of No. 15b; 1 of No. 16; 3 of No. 16a; 1 of No. 17; 3 of No. 18a; 7 of No. 18b; 9 of No. 22; 1 of No. 22a; 1 of No. 23; 6 of No. 24; 2 of No. 25; 1 of No. 25b; 5 of No. 26; 5 of No. 27; 4 of No. 27a; 1 of No. 27b; 1 of No. 29; 1 of No. 32; 6 of No. 35; 394 of No. 37; 70 of No. 37a; 112 of No. 38; 2 of No. 40; 2 of No. 45; 1 of No. 47a; 18 of No. 48; 4 of No. 48a; 1 of No. 51; 3 of No. 52a; 2 of No. 53; 4 of No. 55a; 2 of No. 57c; 26 of No. 59; 1 of No. 62; 1 of No. 63; 4 of No. 64; 1 of No. 70; 2 of No. 73; 2 of No. 77; 4 of No. 90a; 1 of No. 94; 2 of No. 96a; 1 of No. 103; 1 of No. 103f; 2 of No. 103h; 5 of No. 111; 5 of No. 111a; 19 of No. 111c; 2 of No. 130; 4 of No. 133; 2 of No. 143; 1 of No. 146a; 3 of No. 155; 1 of No. 168a; 1 of No. 168c; 4 of No. 186; 15 of No. 188; 8 of No. 189; 3 of No. 190; 3 of No. 190a; 5 of No. 191; 11 of No. 192; 2 of No. 200; 5 of No. 212; 2 of No. 214; 4 of No. 215; 1 E15R or E20R Electric Motor.

WINTER MODEL-BUILDING CONTEST No. 2

Final Reminder

THIS Competition closes at the end of this month. If you have not already completed and sent in your entry, do so without further delay. All you have to do is to think of a new model and then set to work to construct it, as neatly and realistically as possible, from standard Meccano parts. Models that are merely copies of models shown in Meccano Instruction Books or other Meccano publications will not be eligible.

When you have completed your model the next thing is to obtain either a good clear photograph, or, if this is not possible, make a good sketch of it, and send this to us. *The actual model must not be sent in any circumstances.* However, if you cannot obtain a photograph and you are not much good at sketching, you can ask one of your pals to make the sketch for you. The model itself, however, must be your own unaided work. Include with your photographs or drawings a short description of the principal features of your model, mentioning any points of special interest you wish to bring to the attention of the judges.

In order to give everyone a fair chance entries will be divided into two separate Sections as follows: Section A, for competitors who will be under 14 years of age on March 31 next; Section B, for competitors aged 14 years or over on that date. In each of these Sections a separate set of prizes will be awarded, and full details of these are given in the panel in the next column.

Before posting your entry write your age, name and address, and the letter A or B, indicating the Section in which you are entering, in block letters on the back of each photograph or drawing. You should address your envelope: "Winter Model-Building Competition No. 2, Meccano Limited, Binns Road, Liverpool 13". Remember: Closing date, March 31, 1962.

THE PRIZES

The following prizes will be awarded in each Section of the Competition:

SECTION A

(Competitiors under 14 years of age on March 31 next)

First Prize Cheque for £5.5.0
Second Prize Cheque for £3.3.0
Third Prize Cheque for £2.2.0
Ten Prizes each of 10/6

Certificates of Merit also will be awarded in this Section to those competitors whose entries just fail to reach prize-winning standard.

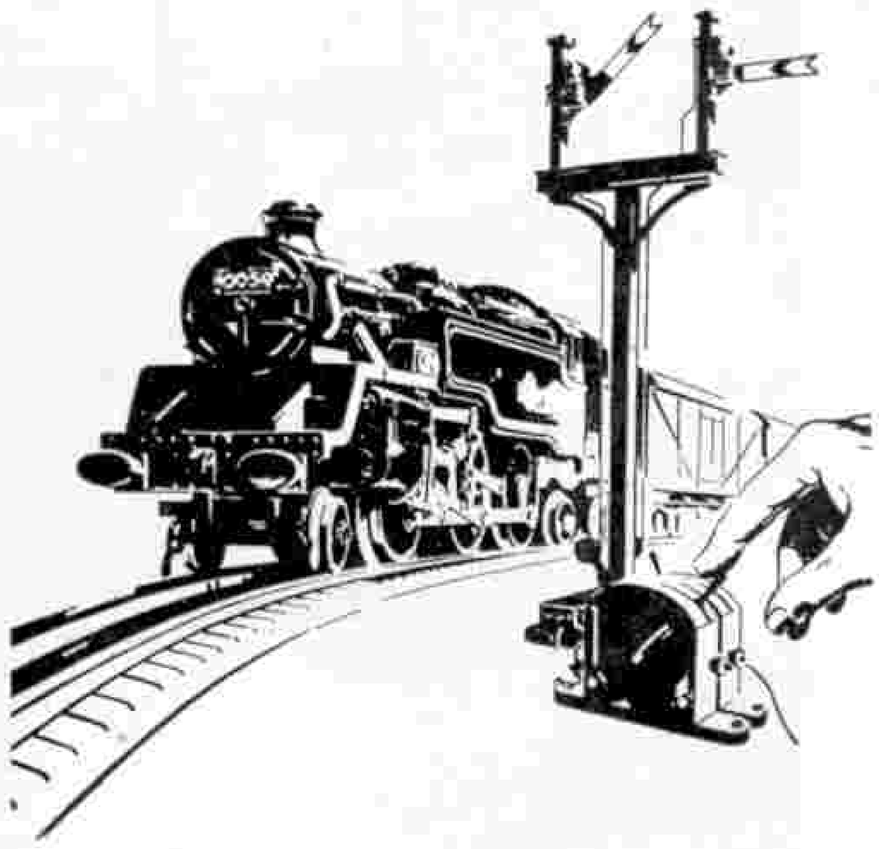
SECTION B

(Competitors who will be aged 14 or over on March 31 next)

First Prize Cheque for £7.7.0
Second Prize Cheque for £5.5.0
Third Prize Cheque for £3.3.0
Ten Prizes each of £1.1.0

HORNBY AND MECCANO

REPAIR SERVICE



THE Repair Service recently introduced by Meccano Limited, to deal with repairs to Hornby-Dublo Locomotives and Tenders (2-rail and 3-rail), Hornby Gauge 0 Clockwork Trains and Clockwork and Electric Meccano Motors, has already been extended.

Four more firms have been added within the past month to the list of Accredited Service Specialists appointed to handle the scheme throughout Great Britain. There are Service Specialists, too, in Northern Ireland and in the Channel Isles.

The scheme was brought into being for the convenience of customers who hitherto have had to forward all Hornby and Meccano repairs to the Service Department at Hanson Road, Aintree, Liverpool. Repairs may still be sent there, but it is hoped that the widening of the Repair Service will enable customers to save time and postage.

You should consult your nearest Accredited Service Specialist if you have any of the products mentioned above requiring repair. Their charges will be based on the time and labour involved. The premises of firms taking part in the scheme carry a distinctive Accredited Service Specialists sign. Their locations are given below:

ANGUS
Dundee—Brian Sherriff, 93 Victoria Road.

BEDFORDSHIRE
Bedford—H. J. Banks, 23 St. Peters Street.
Luton—Aeromodels, 59 Wellington Street.

BERKSHIRE
Reading—E.A.M.E.S. (Reading) Ltd., The Model Shop, 24 Tudor Road.

CHESHIRE
Birkenhead—Birkenhead Model Supplies Ltd., 32 Grange Road West.
Moreton—Mortimer Ltd., 254–260 Hoylake Road.
Neston—J. Bailey, The Model Shop, Parkgate Road.
New Brighton—G. Longworth, 78–80 Rowson Street.

DENBIGHSHIRE
Wrexham—Craftoys Ltd., 4 Centenary Buildings, King Street.

DEVONSHIRE
Barnstaple—E. Gale & Son Ltd., Joy Street.
Bideford—E. Gale & Son Ltd., 2–3 Mill Street.
Exeter—John Webber (Sports) Ltd., 50–51 High Street.
Plymouth—F. T. B. Lawson Ltd., New George Street.

CUMBERLAND
Carlisle—R. M. Hill & Sons, 36–40 Castle Street.

DURHAM
Durham—C. T. Applegarth, The Model Shop, 92 Claypath.

ESSEX
Chelmsford—Chelmsford Model Co., Baddow Road.
Colchester—West End Cycle Stores, 65 Crouch Street.
Ilford—Pages of Barkingside Ltd., 19 Broadway Market, Fencepiece Road, Barkingside.

GLAMORGAN
Cardiff—James Lendon, 194 Fidlas Road, Llanishen.
The Model Shop, 9 Mill Lane.
Neath—Pearms Ltd., 16 Alfred Street.

GLOUCESTERSHIRE
Bristol—The White Tree Electrical and Toy Bazaar, 28 North View, Westbury Park.
Cheltenham—I. Newman (Cheltenham) Ltd., 127–9 Bath Road.
Cirencester—S. E. Trinder, The Model Hangar, 71 Cricklade Street.
Gloucester—O. & N. Ash, 106 Westgate Street.

HAMPSHIRE
Bournemouth—The Sports Shop, 14 Seymoor Road, Westbourne.
Portsmouth—Robin Thwaites Ltd., The Hobby Shop, 28 Arundel Street.
Southampton—Woodkraft Supplies Ltd., 38 Northam Road.

HERTFORDSHIRE
Royston—H. C. Green, 25 High Street.
St. Albans—Bold and Burrows Ltd., 12–18 Verulam Road.
Watford—H. G. Cramer Ltd., 127a–127b High Street.

KENT
Beckenham—Furley & Baker, 69 High Street.
Bexleyheath—W. J. & H. G. Jennings Ltd., Department Store, Broadway.
Canterbury—Barretts of Canterbury Ltd., 2 St, Georges Street.
Gillingham—J. R. Baker (Gillingham) Ltd., 14 Canterbury Street.

LANARKSHIRE
Glasgow—Caledonia Model Company, 478 Argyle Street.
Clyde Model Dockyard Ltd., 22–3 Argyle Arcade.
Glassfords, 89 Cambridge Street, C.3.

LANCASHIRE
Ashton-under-Lyne—Ashton Model Supplies, 201 Old Street.
Darwen—Arnold Leaver, 65–67 Duckworth Street.
Liverpool—Lucas's (Hobbies) Ltd., 7 Tarleton Street.
Rushworth, The Model Railway Shop, 137a Kensington.
Manchester—Bassett-Lowke Ltd., 28 Corporation Street.
The Sports Depot (Manchester) Ltd., 4–10 Princess Road, Moss Side.
Wigan—J. J. Bradburn, 76 Market Street.

LEICESTERSHIRE
Leicester—North's Toy and Model Stores, 5 Melton Road.
Loughborough—Clemersons Ltd., 43 Market Place.

LINCOLNSHIRE
Cleethorpes—H. Loftis, 196 Grimsby Road.
Lincoln—S. A. Nobbs & Son Ltd., 2 Norman Street and 16 Sincil Street.

LONDON
London—Allan Brett Cannon Ltd., 32 Railway Approach, London Bridge Station, S.E.1.
H. A. Blunt & Sons Ltd., 133 The Broadway, Mill Hill, N.W.7.
Hamblings (Models) Ltd., 10 Cecil Court, Charing Cross Road, W.C.2.
Model and Tool Supplies, 604 Kingston Road, Raynes Park, S.W.20.
Models (City) Ltd., 2 The Arcade, Liverpool Street Station, E.C.2.
Palace Model Shop, 13 Central Hill, Upper Norwood, S.E.19.
W. & H. (Models) Ltd., 23 Paddington Street, Baker Street, W.1

MIDDLESEX
Edgware—Cresta, 1 Cinema Parade, Manor Park Crescent.

MIDLOTHIAN
Edinburgh—Harburn's Hobbies Ltd., 116 and 122–124 Leith Walk.

NORTHAMPTONSHIRE
Peterborough—Oliver Carley, 35 Broadway.
Wellingborough—Littlefolk, 24 Market Street.

NOTTINGHAMSHIRE
Nottingham—Beecroft & Sons Ltd., 16 Pelham Street.
Gee Dee Ltd., Friar Lane and Goose Gate.

PERTHSHIRE
Perth—Bob Croll, 75 High Street.

SOMERSET
Bath—Pram and Toy Shop Ltd., 22–23 Southgate Street.
Cyril Howe's of Bath Ltd., 15 Abbey Churchyard.
Taunton—Westlakes (Cycles) Ltd., Station Road.
Yeovil—H. J. Perris (Retail) Ltd., 9–11 Princes Street.

STAFFORDSHIRE
Burton-on-Trent—J. W. Belfield, 2–4 and 12–14 West Street and Market Street, Swadlincote.
Cradley Heath—Dunns (Cradley Heath and Dudley) Ltd., 65 Lower High Street.
Stafford—John Bagnall, South Walls Road.
Stoke-on-Trent—John Pepper (Hanley) Ltd., 61–65 Piccadilly.
Walsall—S. H. Granger, Caldmore Models, 108 Caldmore Road.
Wolverhampton—A. J. Chamberlain, 39 Darlington Street.

SURREY
Coulsdon—R. Wills (Scientific Hobbies) Ltd., 92 Brighton Road.
Croydon—Priors, 107 High Street.
Guildford—Guildford Dolls Hospital Ltd., 13 Swan Lane.

SUSSEX
Bexhill-on-Sea—Arber's Model and Toy Shop, 46 Weston Road.
Crowborough—Regent House, High Street.
St. Leonards-on-Sea—A. Hammonds, 5/6 Marine Court.

WARWICKSHIRE
Birmingham—Bearwood Model Supplies, 53 Parade.
The Perrys, 769 Alum Rock Road, Ward End.
J. Williams, 51 Comberton Road, Sheldon.
Sutton Coldfield—W. Gill & Son, The Parade.

YORKSHIRE
Bradford—Bradford Model Railway Centre Ltd., 202 Keighley Road, Frizinghall.
Leeds—King Charles Sports Centre, 18 and 20 King Charles Street.
Sheffield—Fred Shaw, 42 Church Street.
The Redgate Co. (Sheffield) Ltd., Moorhead.

CHANNEL ISLES
Jersey—George D. Laurens, 3/5/7 Queen Street.

NORTHERN IRELAND
Belfast—The Model Shop, 36 Wellington Place.
Thornton & Co. Ltd., 40/42 Donegal Place



ADDING REALISM TO YOUR SCHEMES

Figures That Speak For Themselves

THE station scenes that form our pictures this month show a welcome degree of platform activity. Not that the trains themselves are moving, but the miniature figures that are dotted about give a pleasing air of life that is much more satisfactory than the impression given when, as happens on some layouts even yet, the trains call at completely empty platforms!

The figures shown in the two pictures on the next page are from the set of railwaymen that has been available for some time, and you will already have become familiar with them as Dublo Dinky Toys No. 050. There is little need to introduce you again to platform staff such as the Stationmaster or Ticket Collector, or trainmen such as the Engine Driver or Guard, as I expect that most of you will already have some of these people busy on your layouts.

In our first picture, there are necessarily some railwaymen, but the folk I want to talk about are the Railway Passengers, Dublo Dinky Toys No. 052. These little people have already appeared in the advertising pages of the *M.M.* and actually the illustrations there will have given you a fairly good idea of their general character. Now, I am able to show them to you in actual use on a station platform.

By
THE SECRETARY

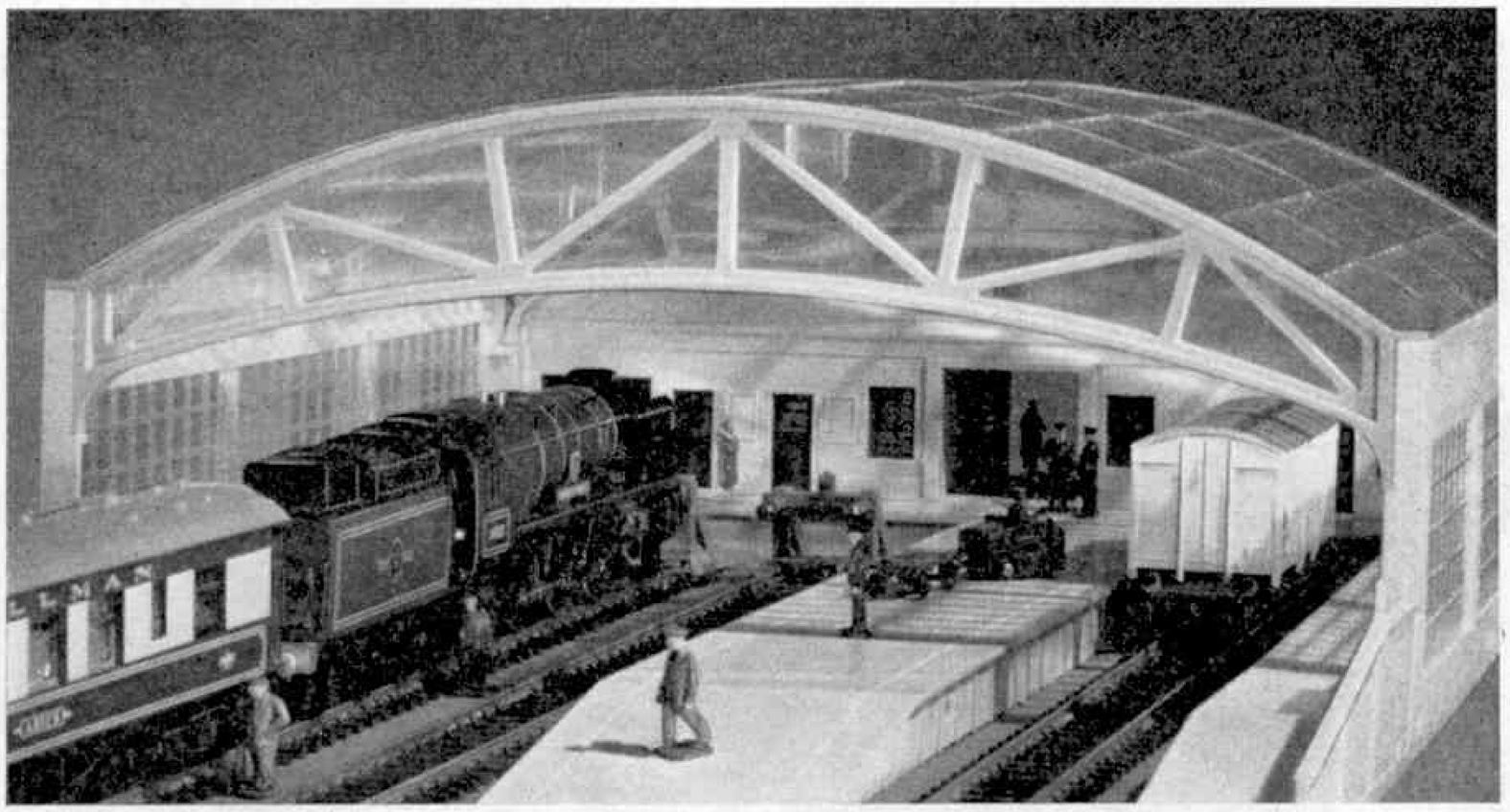
This is the first opportunity I have had of including a note about them in these pages, and I can tell you that they are just as attractive in their own way as the railwaymen figures I spoke about some time ago. When you see these latest models at close quarters you cannot help noticing how well moulded they are, and if you look at them through a magnifying glass you will find that their features are actually modelled. Their attitudes and their clothes look natural too, and the flat finish used in colouring them helps to give them a remarkably natural and realistic appearance.

In the picture above the Railway Station Passengers of Dublo Dinky Toys No. 052, and the Railway Personnel of No. 050 are used together, with pleasing effect on the platform.

THE HORNBY RAILWAY COMPANY

I have been interested in miniature figures of all kinds for quite a long time, and it is a remarkable fact that, of the many varieties that have been produced from time to time for miniature railway owners generally, very few seem to have included any children or young people. Nearly all of them represented a standard range of grown-ups. So the opportunity has been taken to introduce some youngsters among the figures now featured in the 052 Set, and the youngest of them forms one of the family trio you can see on the station seat, the seat itself forming an essential part of the set. This small child is modelled as if sitting cosily next to his mother, the two forming a single moulding. This is the first time that seated figures have been available in Hornby-Dublo.

Yes, the three figures on the seat make a nice group as they wait for their train to arrive. The train now standing, as the station announcers say, at the platform behind them is clearly not the one they want. More interest is being displayed in



"Train now arrived . . ." sums up the situation here. The station is assembled from the components of the No. 5083 Composite Station Kit.

it by some of the other people, in particular the schoolboy near the top of the platform ramp who is admiring the engine *Cardiff Castle*. I suspect that he is a keen spotter who has just added No. 4075 to his "bag". He, like his pigtailed sister, the schoolgirl who is standing at a more discreet distance from the engine, opposite the rear driving splasher, is modelled in typical school uniform—blue blazer and cap for him, maroon blazer and beret for her. Both have schoolbags slung over their shoulders in the usual nonchalant manner.

Variety and colour

Impressed, but not specially interested perhaps, in the locomotive is the young lady, a junior miss, I think, in the light dress, who is standing near the tender. Blonde, hatless and with flared skirt, she adds variety and colour to the scene.

A typical figure whom you can see in real life, at so many stations, is the woman sitting demurely on a large suitcase, with other items of luggage alongside. Her baggage suggests that she is going on a fairly long journey, and she is, therefore, appropriately dressed for this. You can see her on the platform, almost level with the front of the first coach. She is clearly quite contentedly waiting for the train she wants.

Further along the platform, by the first pair of luggage doors, is a businessman, complete with brief case, bowler hat, and rolled umbrella. The last-mentioned item you cannot see in our picture, as our City gent is turned away from us, and he is holding the umbrella in his right hand. This particular figure, in neat grey suit, certainly looks the part.

In complete contrast is the carefree looking sportsman, with the bag, containing his gear, in front of him. The impression of a casual stance is remarkably well conveyed in this figure, for he is wearing a double-breasted jacket, light trousers and cap.

Dignity is combined with elegance in the figure of the woman who stands holding a handbag. This matronly person wears an attractive dress and a close-fitting hat of contrasting colour. To wind up with, we have a man in a belted raincoat and trilby hat, who is carrying a large suitcase. As an example of the mythical *Mr. Everyman* he would be hard to beat.

A great point about these varied figures is the way in which they can be used on their own, or posed together in groups, and I am sure that many of you will spend quite a lot of time arranging and re-arranging these miniatures in order to gain convincing effects. In our picture, except for the seated figures, these new people of Set No. 052 have been placed individually so that you can pick them out fairly easily on the station platform. There is, of course, plenty of opportunity for their use nowadays, in view of the fine selection of Kits now available in the Hornby-Dublo range for the assembly of stations of different kinds.

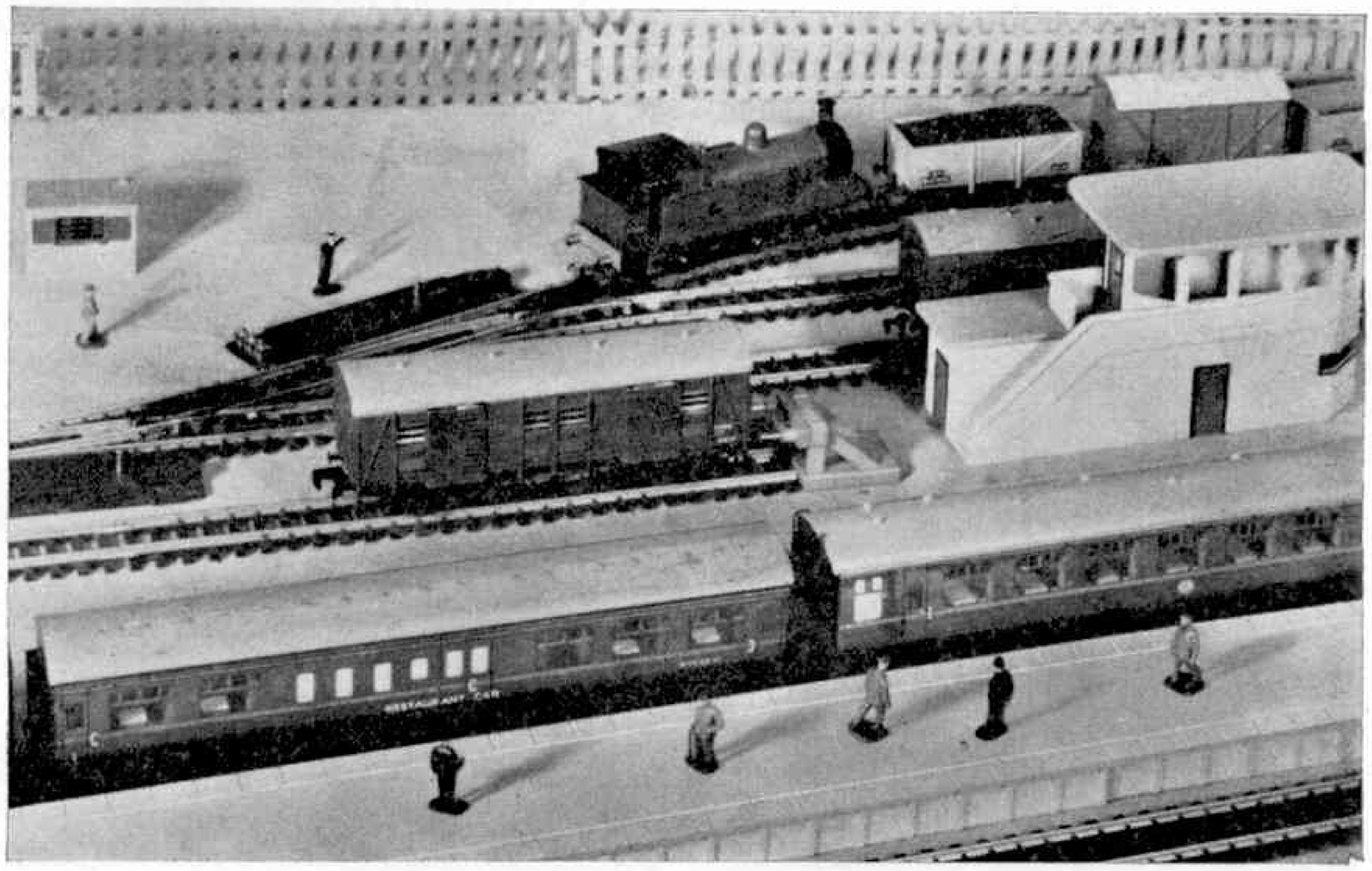
The latest addition is the No. 5083 Composite Kit, the parts of which build up into either a Through Station of imposing character with overall roof, or a terminus such as the one shown in the upper picture on this page. The Island Platform and the Suburban Station that can be built up from Kits Nos. 5030 and 5085 are no less realistic and adaptable, and I must not forget the Platform Extension No. 5086 which makes a useful unit for the purpose implied in its name.

Other opportunities

In addition to the use on station platforms of the miniature figures we have just met, plenty of opportunities will present themselves for using them elsewhere on almost any layout. The road systems that form part of the lineside effects on so many miniature railways nowadays require people, and selecting the most suitable figures for your particular purpose can be really good fun. Some of them are clearly just standing or sitting, but some others can be used to represent people walking, if necessary; so take care in picking the right ones.

No doubt many of you operate bus services, or at least include one or two of the familiar Dinky Toys double-deckers in your lineside road effects. Some of the people we have just been describing can form that familiar sight in these modern times, the bus queue. However you use them, the final result cannot be otherwise than pleasing because of the extremely high standard of modelling that has been attained in their production. Quite literally these are figures that speak for themselves.

A platform scene in Hornby-Dublo showing one of the new Open Coaches marshalled next to a Restaurant Car.



WHEN BEN (THE BOSS) AND GEORGE (ASSISTANT) GET TOGETHER



"Ben the Boss", or Edric White (H.R.C. No. 336121), intent on the management of his Hornby-Dublo railway, described in this article.

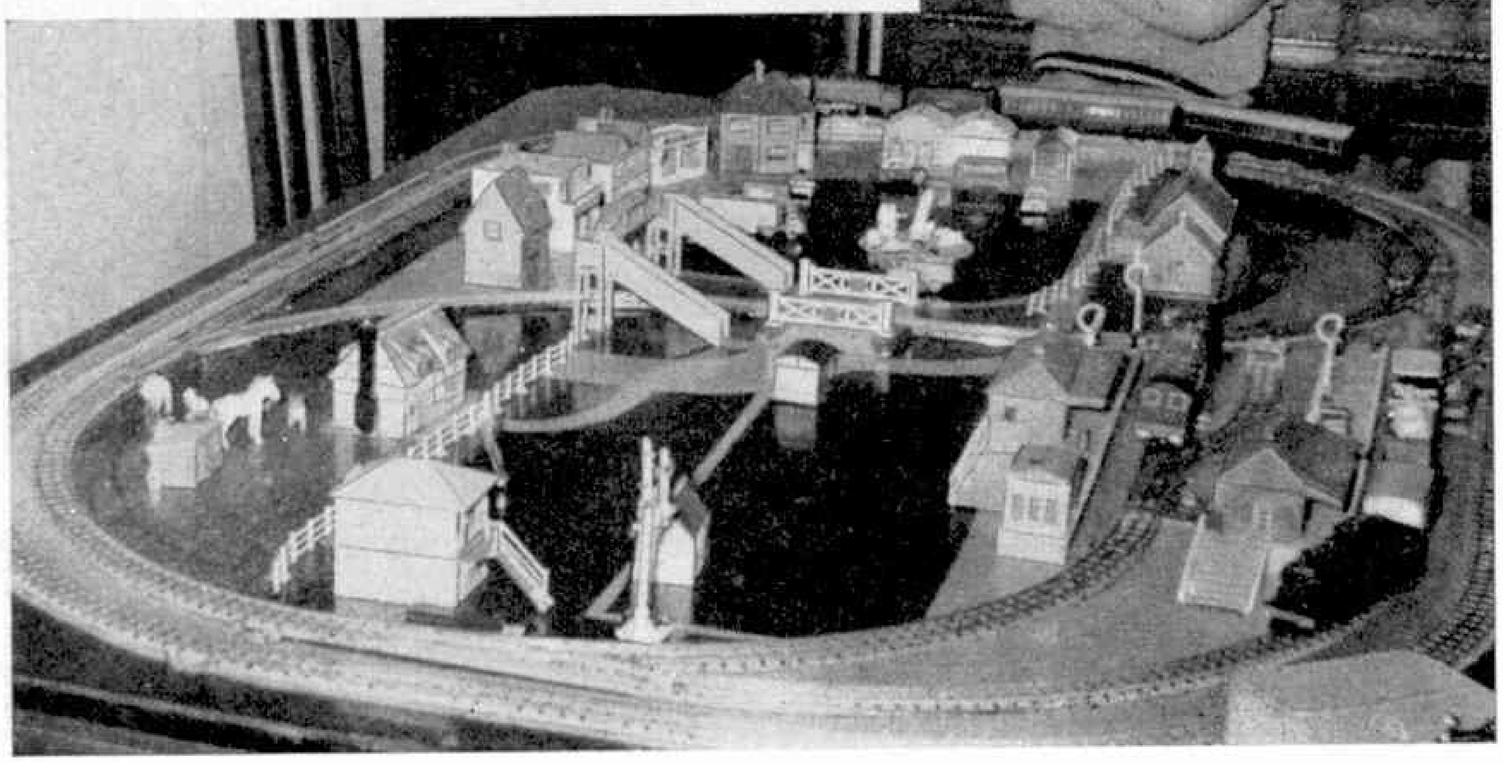
IT is always a pleasure to receive photographs of Hornby-Dublo owners with their layouts; it is even more so when they are so obviously delighted with their miniature railway kingdoms as is Edric White of Birmingham, whose layout you see in the illustrations on this page. In the upper picture Edric, who is No. 336121 in the Hornby Railway Company, is clearly intent on the very serious business of operating his trains; in the lower illustration, with everything presumably in apple-pie order, he is content to stand and watch them go by—and you can see just how proud of them he is.

LAYOUT MAN
Describes A 3-Rail Scheme With A Reverse Loop

Edric's interest in his very complete Hornby-Dublo Three-Rail layout is shared by his grandfather, Mr. F. G. White. I should like to see these two busy together on the railway, for they then shed their ordinary identities and become respectively *Ben* (the Boss) and *George* (his assistant), the latter being grandfather's rôle. It was *George*, incidentally, who took the photographs and who has been good enough to provide me with details of the railway.



Another view of "the Boss" watching the trains go by.

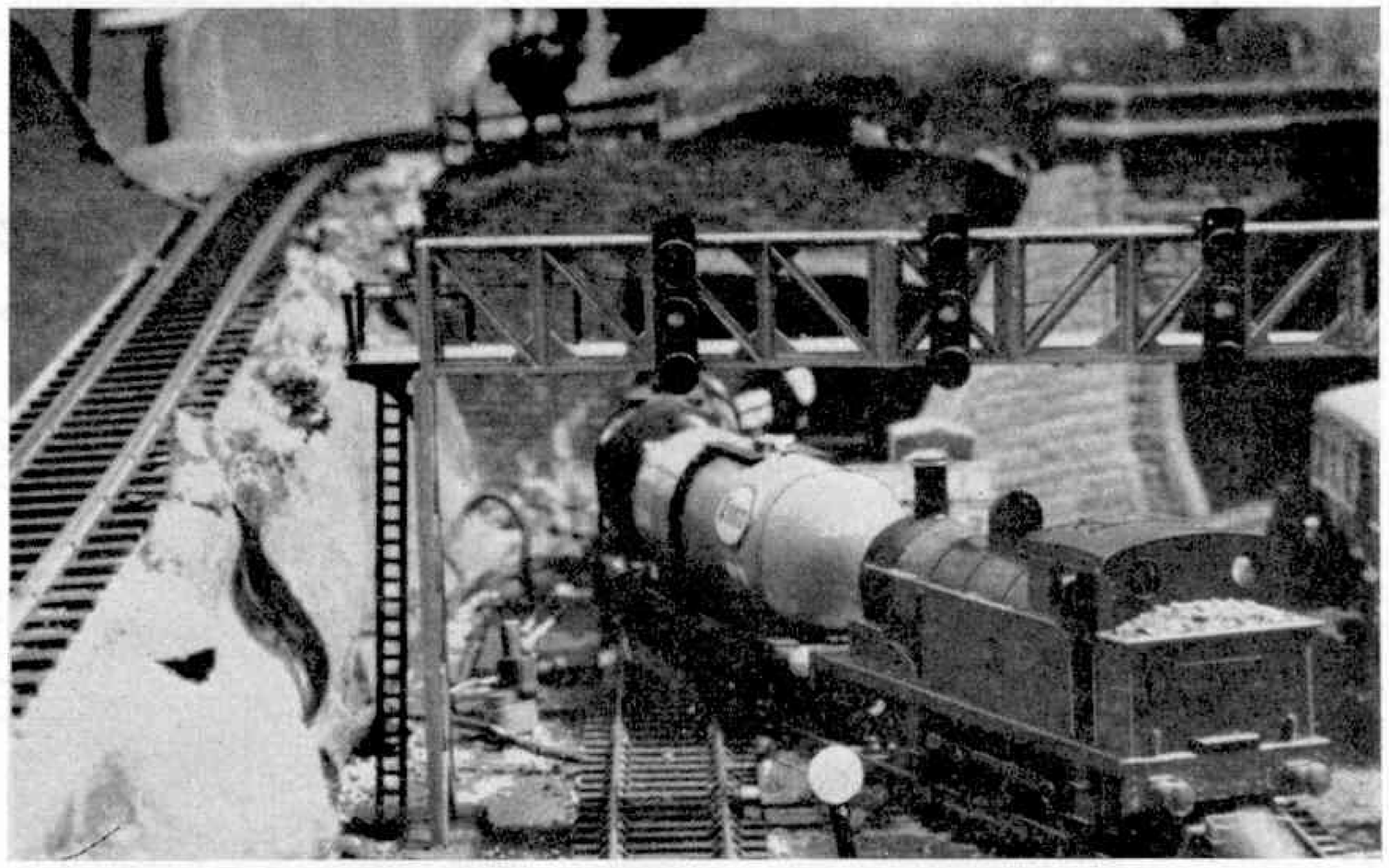


It is clear that he takes a very great interest in things, so much so that the layout is actually situated at his house because the necessary space for a railway is lacking in his grandson's home.

The railway has been in course of development for just on four years and apart from the growth of the layout the fortunate owner has, at seven and a half, become expert in regulating the movements of the trains and in working the Points, which, with one exception, are Electrically-Operated.

Although the railway has been built up to the requirements of the younger member of the partnership, I suspect that his grandfather has helped considerably in the track laying and electrical wiring.

To judge by the illustrations, this must be a very successful partnership, for the layout includes a main line double track following the popular so-called oval shape, with an S-shaped reverse loop across the middle. The board on which it is laid is supported on the remarkably firm base afforded by a



A Hornby-Dublo 0-6-0 Tank shunts a train of "Esso" Fuel Oil Tank Wagons at a motive power depot on the Two-Rail layout of S. F. Page, of St. Albans.

small billiards table. Thus, not only firmness but good level is ensured, and on the excellent "road" provided the trains perform in a very satisfactory manner.

It is considered by our friends that the layout has reached the limit of expansion now possible, at least from the track point of view, but I should not be at all surprised to learn in due course that some further scheme was in hand because as *George* says: "One is always filled with the desire to go one better after every addition." That is why development on most miniature layouts hardly ever stands still for very long.

Well-Planned Neatness

As often happens, the reverse loop that traverses the centre of the layout has provided a very suitable site for the Level Crossing, and for the benefit of travellers on foot, when the gates are closed to the road, the Hornby-Dublo Footbridge is situated nearby. Numerous other lineside effects can be picked out in the illustrations and the general aspect is one of well-planned neatness. The road traffic that uses the spaces in the centre of the layout has room in which to move—something that all Dinky Toys motor drivers will appreciate.

The traffic on the railway is handled by three Hornby-Dublo Locomotives, pride of place being held by the 4–6–2 *Mallard*, clearly in view in the top picture opposite. Freight and mixed traffic duties are shared by two popular types, the 0–6–2 Tank and the Bo–Bo Diesel.

Although a pleasing variety of rolling stock is available, there is not too much,

(*Continued on page 132*)

NOW, THE REVERSE LOOP IN TWO-RAIL

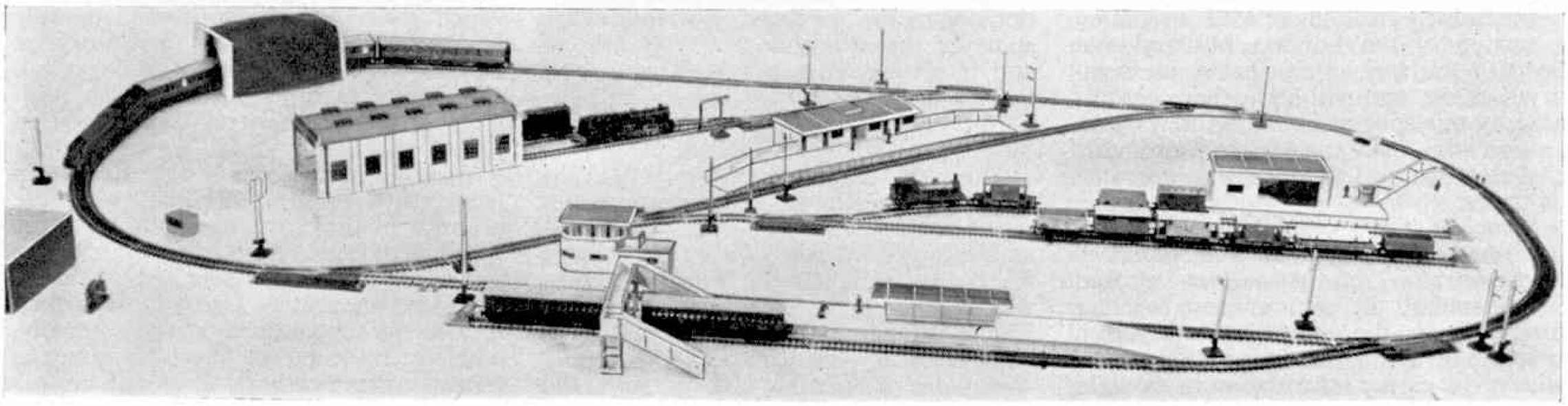
Monthly Feature By Linesman

HERE is a further interesting track formation in our monthly series designed to make clear the principles and wiring of Two-Rail operation with the use of Hornby-Dublo components. This month, we introduce a layout which includes the reverse loop, an arrangement which allows a train to reverse its direction of travel without the use of a triangular junction or "Y" formation. It will be readily understood that if a train travelling round the main track in an anti-clockwise direction is switched through the diagonal connection between the lower and upper tracks (looking at the diagram) it will continue its journey, after leaving this section, in a clockwise direction.

In order to enable this movement to be carried out in Two-Rail, a certain sequence of events must be followed. This does not apply to Three-Rail, which operates on a different electrical system so far as track arrangements are concerned.

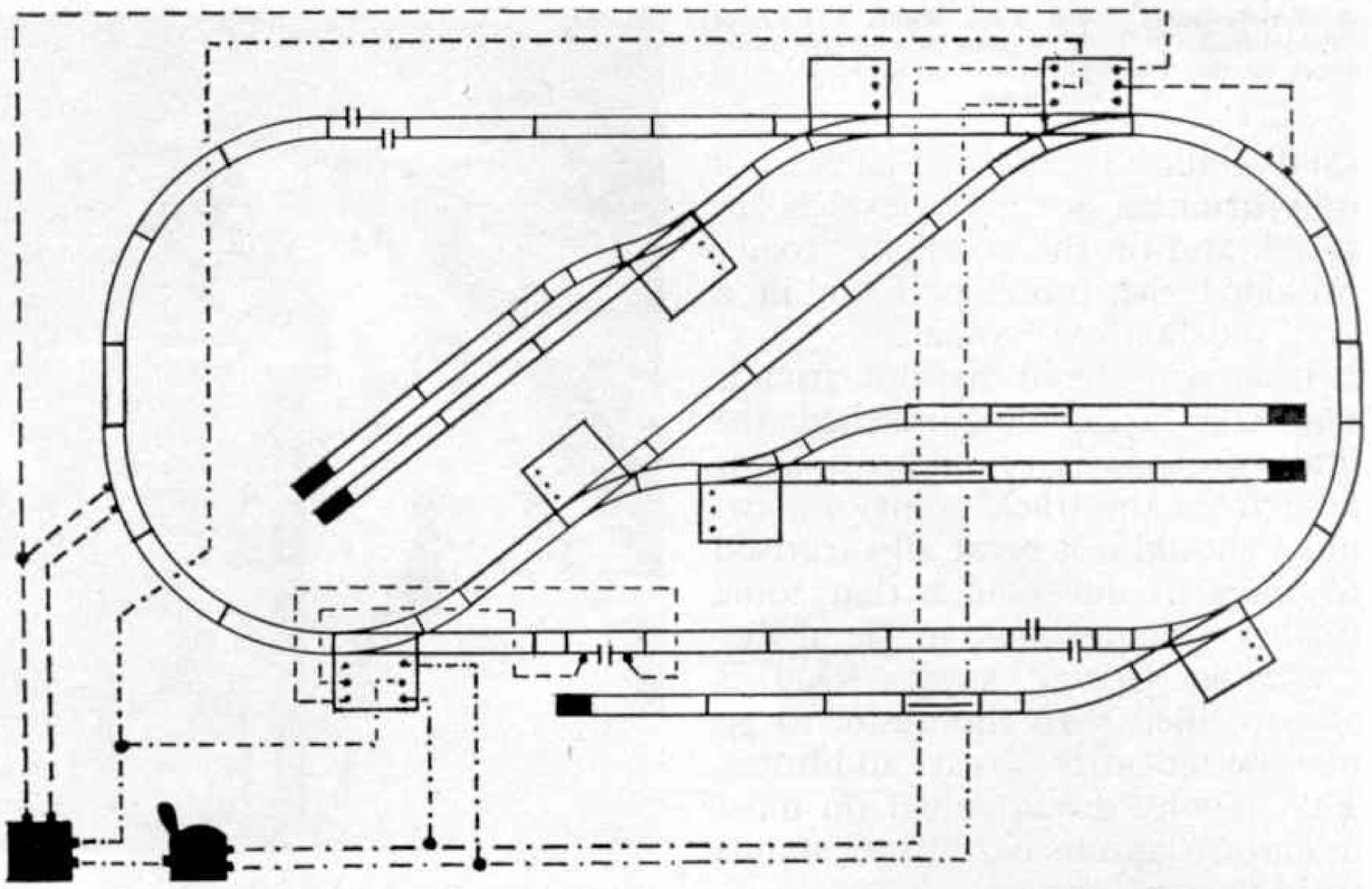
In Two-Rail, to switch the train through the diagonal track or loop both points must be moved at once. When it is intended to pass through the loop from right to left, the control unit must be

View showing layout with Reverse Loop. Wiring diagram is overleaf.



ITEMS REQUIRED

11 Curved Rails	2710
2 Curved Terminal Rails with Suppressor	2714
5 Curved Half Rails ..	2711
3 Curved Quarter Rails ..	2712
21 Straight Rails	2701
8 Straight One-Third Rails	2703
9 Straight Two-Third Rails	2702
3 Uncoupling Rails ..	2745
1 Straight Two-Third Single Isolating Rail	2738
2 Straight Two-Third Double Isolating Rails	2739
2 Left Hand Switch Points	2729
3 Right Hand Switch Points	2728
2 Left Hand Points Electrically Operated ..	2732
5 Buffer Stops	2450
1 Switch	1614



moved to reverse at the same time as the Points are switched for the loop.

A train passing through the loop from left to right will halt in the isolated section of track between the Single and Double Isolating Rails shown on the diagram until the Points are re-set and the control knob is moved to reverse.

Failure to move the control knob to the opposite direction will result in the Locomotive going backwards, as the polarity of current is reversed during the Locomotive's passage through the loop.

It is important to note that the Single Isolating Rail gap is placed on the opposite side of the track to the Points frog. This is because the reverse polarity exists when the loop is in use.

The wiring of a layout with a reverse loop is different from that of a layout without this feature, and is made clear in the diagram. In order that both Points serving the loop may be moved at once, they are Electrically-Operated by means of one 1614 Switch, the wiring for which is indicated.

Each siding on this month's layout has been provided with an Uncoupling Rail, so that shunting operations can be performed, and these rails can be Electrically or Hand-Operated as desired. The engine shed tracks do not, of course, require Uncoupling Rails.

If it is desired to bring an engine out of the shed and round the main line to one or other of the sidings, a train already on the main line must be run into the lower siding or into one of the middle sidings. The action of setting the Points against it will render the section of track on which the train stands electrically dead, and thus allow the engine movement to be carried out.

The Points and other hand-operated accessories can be replaced by electrically-operated items if the owner wishes to have remote control of his miniature railway. Instructions for wiring are provided with every accessory.

The layout will fit on a baseboard measuring 8 feet by 4 feet 6 inches. This space will also allow sufficient room for the power control unit and the necessary switches.

Railway Book Reviews

TALES OF THE GLASGOW AND SOUTH WESTERN RAILWAY

By David L. Smith

(Ian Allan, price 18/6)

The Glasgow and South Western was a railway of very great character. Its lines spread southwards from the great city on the Clyde, and the railway itself was the result of the amalgamation of several smaller systems. The *Sou' West*, as it was commonly called, lost its separate identity at the railway grouping of 1923, becoming a section of the London Midland and Scottish Railway. Nevertheless its memory lives on, and will be further perpetuated by this splendid book written by an author who knew the system thoroughly and also many of the men who operated its trains.

Some of the stories told here were published originally in *The Railway Magazine* and *Trains Annual*, and proved very popular. In getting them together for this book, the opportunity was taken to make certain corrections and to otherwise revise earlier information in the light of additional knowledge which has come to hand over the years. There are stories of tough operating conditions brought about by the numerous steep gradients, of the locomotives and their peculiarities, and of the many drivers, firemen, guards and signalmen, most of who had nicknames. Other stories tell of storms and blizzards, and of the tragedy and humour inseparable from a railway, especially in those earlier days when operating practices were anything but perfect and the hours of work were very long and hard.

The comprehensive selection of illustrations helps further to bring to the reader some of the atmosphere of this bygone and much-revered railway. There is an index and two useful appendices.

* * * *

This year is the centenary of the old Great Eastern Railway, and appropriately Ian Allan Ltd. have published a revised and enlarged edition of Cecil J. Allen's fine book on this railway. The first edition was reviewed in the September 1955 *M.M.* The additional text in the revised work—**"The Great Eastern Railway"** (price 30/–)—includes a section dealing with the present-day Great Eastern Line, as we know the system today, an important and distinctive part of British Railways, Eastern Region.

Early chapters deal with the fortunes of the separate companies that were amalgamated a century ago to form the old Great Eastern, followed by an account of things as they were up to the inclusion of that line in the former L.N.E.R. in 1923. As might be expected, locomotive, train, traffic signalling and engineering matters are given very complete attention, while the Continental services via Harwich, in which the Great Eastern was specially interested, have a chapter to themselves. Developments during the L.N.E.R. period, and since the formation of British Railways bring the account up to more modern times.

With electrification schemes that are in being, and those impending, with the advance of diesel traction, and with the speeding of freight traffic made possible by modern signalling and marshalling methods, the present Great Eastern Line is a worthy successor to the old company, with which the author began his career as a railwayman nearly 60 years ago.

Tommy Dodd Writes About...

MIXED GOODS TRAINS IN GAUGE 0

I AM sure that my young friends who run some of the smaller locomotives and rolling stock in the Hornby Gauge 0 range will be glad to see the picture at the top of this page, because it shows something about which we have talked recently. There is a No. 30 Locomotive, and a small selection of goods rolling stock. Although the Wagon immediately behind the Tender is a No. 30 vehicle, the one coupled next to it is of the No. 20 kind.

You will probably remember that I have told you that these two types can be coupled together successfully, although their actual couplings are of different designs. The No. 20 Wagon is slightly smaller in its general proportions than the No. 30, but this difference does not show up very much. In any case, since real wagons are not of exactly the same size, reality can be sustained in the use of "mixed" wagons on your layout.



No. 20 and No. 30 vehicles can be coupled together successfully, as they are in this illustration.

We find the same situation in the line of Wagons on the siding behind. The Tank Wagons and the Open Wagon next to the Buffer Stop are No. 20s, but the Goods Van near the left-hand edge of the picture is a No. 30. On the whole, I think these two main types of vehicles mix together quite well, and I am sure there are plenty of such combinations in use on many Gauge 0 layouts.

* * * *

Our second picture shows a type of train that is a favourite with some operators—the van train that does a lot of useful work in real life, often running over considerable distances with parcels traffic. In addition to main line journeys by such trains, there are numerous local connecting and feeding services and it is one of these that the Hornby formation in our picture represents.

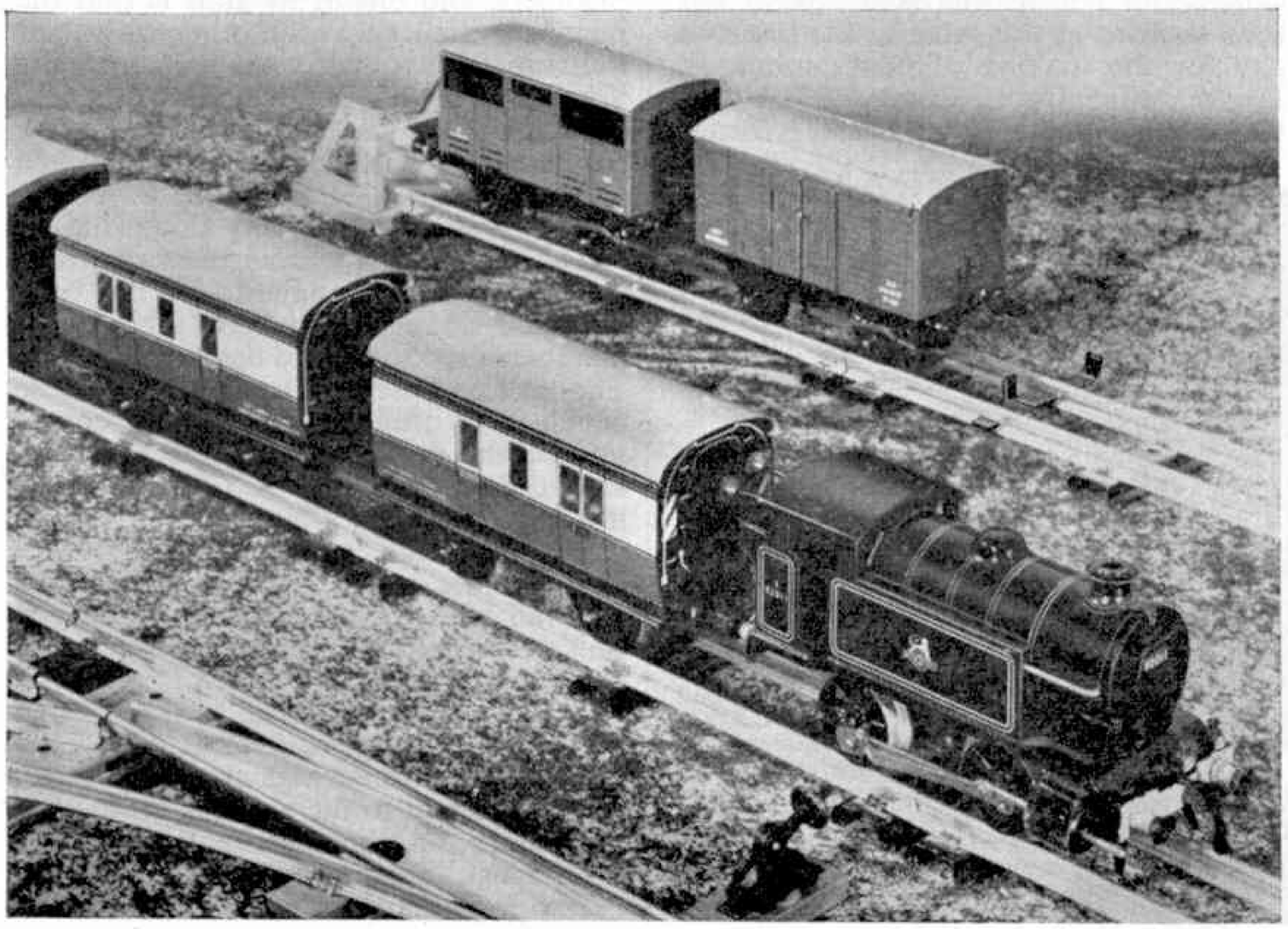
The Passenger Brake Vans shown behind the No. 40 Tank Locomotive are just the thing for this job in miniature. One Brake Van at least is necessary because a guard must travel with the train, but if you do not have enough of these Vans to form a respectable train you can include one or two of the Goods Vans in the Hornby Gauge 0 range. The No. 50 Goods Van is most useful for this work because it has opening doors on each side and you can put miniature loads in it, if you like this kind of activity.

Parcels trains are a regular feature of real railway working, and in some services there may be vehicles reserved for a certain kind of traffic, associated with some particular firm, or a special route. And you can be sure that the railwaymen who have anything to do with their running have names for them. *The Johnsons'*, *The Crewe Parcels* or *The Clapham Vans* are examples I can call to mind.

The running of such trains makes a change from the operation of passenger services, and the collecting together of the necessary Vans will probably call for a fair amount of shunting and marshalling. Not many of us can manage to reserve a number of Brake Vans, for instance, for parcels traffic alone.

Let me conclude in appropriate manner with a note about the tail of the train. It is not necessary to have a Brake Van right at the end. It will be quite in order to finish off your train with, say, a No. 50 Goods Van. This vehicle, like the other Hornby No. 50 Vans, has lamp brackets, so it can carry the tail lamp that shows the train is complete.

A No. 40 Tank is here in charge of a van train on a Hornby Gauge 0 layout.



WITH THE SECRETARY

Club and Branch News

LOOKING AHEAD

THE end of this month brings us once more to the close of another indoor model-building season, and to the threshold of the first of the so-called summer sessions. In the majority of Clubs and Branches provisional programmes for the forthcoming session will have been drawn up, with the usual emphasis on outdoor activities as much as the weather will permit. In our unstable climate, however, it pays to have a second string to one's bow, so to speak, and to have an alternative schedule of indoor activities prepared which can be put into operation at short notice as the occasion demands, and thus avoid the flurry of something hastily improvised.

I shall be glad to hear what Clubs and Branches are planning for their summer sessions.

CLUB NOTES

COPDOCK AND WASHBROOK M.C.—The Club meets weekly on Wednesday evenings from 7 p.m. to 9 p.m. for Meccano model-building, aeromodelling and fretwork. Usually films are shown for about 20 minutes, and the meetings end with a period of indoor games. Club funds gained £1.12.0d. by a recent Beetle Drive. *Leader:* Mr. A. C. Pearsons, The Gables, Washbrook, Ipswich, Suffolk.

30th BRISTOL LIFE BOY TEAM M.C.—Mr. David Carter has been appointed Leader-in-Charge, and Mr. Horlick is now Honorary Treasurer and also the Team Handicraft Instructor which, of course, includes Meccano model-building activities. Plans are in hand for an outing to the Bath Tattoo next July. *Treasurer:* Mr. Graham H. Horlick, 44 Hartgill Close, Hartcliffe, Bristol 3.

NORTH END (PORTSMOUTH) M.C.—The Club's eleventh anniversary was celebrated by a party on January 10 last. Club room conditions during the winter have been made more comfortable by the purchase of an oil heater. The reference to the Club in the official Southsea Guide Book has been amended for the 1962 edition to include mention of the Club's associated H.R.C. Branch. *Secretary:* Mr. A. J. Nicholson, 213 Sultan Road, Buckland, Portsmouth.

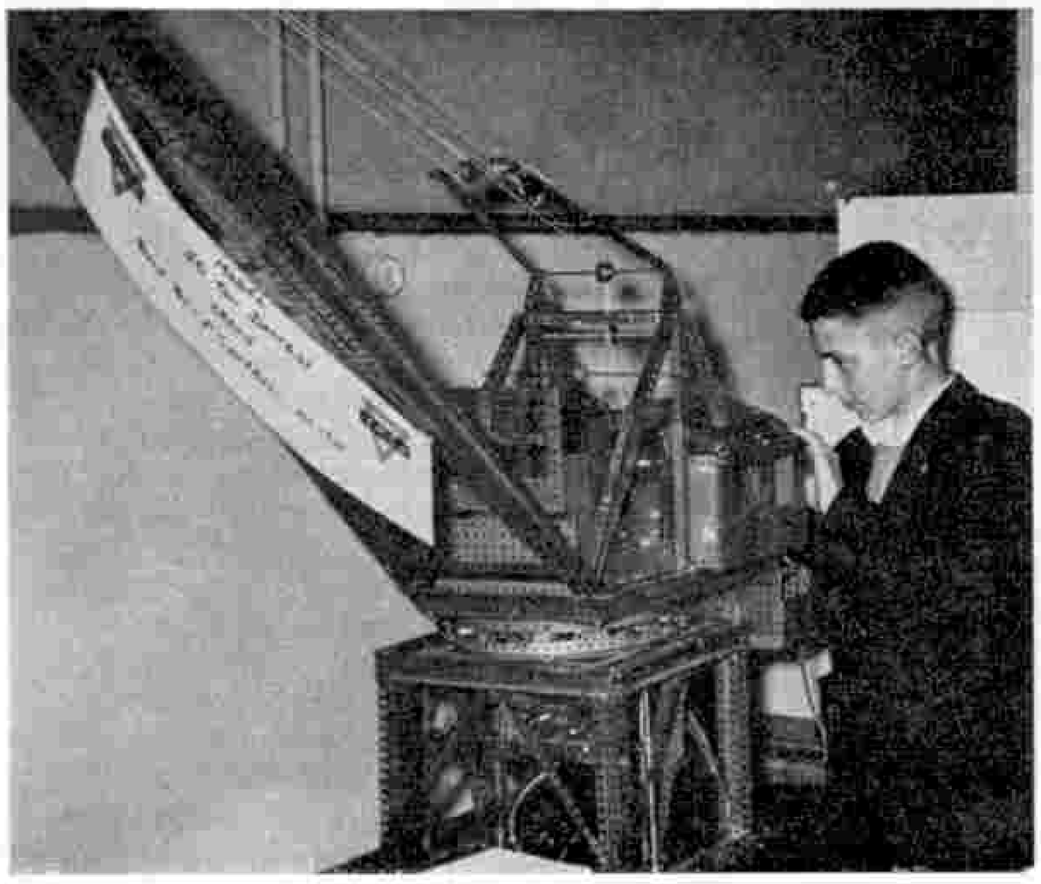
SOUTH AFRICA

CAPE PENINSULA M.C.—Hitherto members have been divided into groups, each group having its own cabinet of Meccano parts. The advanced model-builders have been mixed with the less experienced members in the expectancy that the latter would gain model-building knowledge from their older comrades. Difficulties have arisen, however, in deciding models to build, as some good ones have been rejected on the grounds that they are too simple for some members of a group or too advanced for others. So this year the grouping arrangements have been revised. Now the expert model-builders are able to work together and the less experienced ones can build in their own groups under the supervision of the Leader.

The Club finances are very satisfactory, with about £50 in the bank, and it has been decided to use some of the funds to pay for the making of new cupboards. *Leader:* Mr. Colin Cohen, 23 Upper Rhine Road, Cape Town, South Africa.



Mrs. Joan Audrey Timms, the enthusiastic Chairman of the recently-formed Leconfield Close H.R.C. Branch No. 578, of Hull, Yorkshire.



Fred Campbell, of the Consett and District Y.M.C.A. M.C., with his Meccano model of a 50-ton dockside crane. Last year Fred won an award as the best Club member of the year, and he also received the award for the model of the year—worthy recognition of his enthusiasm and skill.

BRANCH NEWS

LUTON COUNTY SECONDARY TECHNICAL SCHOOL—The Branch has received the welcome gift of a large amount of model railway equipment from Mr. Rowe, of Reading, and at recent meetings members have been busy incorporating this material into the Branch layout. At the same time the scenic effects of the layout have been improved. *Secretary:* D. Clark, County Secondary Technical School, Barnfield Avenue, Luton, Beds.

LECONFIELD CLOSE (HULL)—This recently-formed Branch now has 18 members, and one of its aims is that the members shall help each other with their individual layouts. At present the Secretary's own layout, which is 8 ft. × 4 ft., is being used as the Branch layout. *Secretary:* Ronald Timms, 44 Leconfield Close, Greatfield Estate, Hull, E. Yorks.

AVIARY MODEL RAILWAY CLUB (LEEDS)—The Club had to leave their quarters, and alternative accommodation has been obtained at a club where the Aviary members used to go and listen to lectures. The new premises are smaller than those which have been vacated, and in consequence the gauge "0" layout has been scrapped. The gauge "00" layout now has to be put away after each meeting, so it has been fixed on a new board, with wooden sides, which can be placed against the wall after use, without damaging the rails or fixed accessories. At meetings the layout is placed across three tables.

A competition has been held to design a Club shield—the equivalent of a Club flag—and the winner was awarded a small prize. A shield to the winning design has been made, and has been painted by the Club artist. *Secretary:* Mr. J. Baker, 27 Park Spring Gardens, Leeds 13.

KENNETH RAWNSLEY describes a night's activity with . . .

THE G.P.O. "PIRATE" SQUAD

THE night was dark. Rain lashed the streets of a northern city as we sped along the highway.

"G.P.O. calling! G.P.O. calling!" The voice rang out clearly on the inter-com of a G.P.O. radio detector van.

Somewhere on a radio or television receiver there would be an almost inaudible crackle or flash. The G.P.O.'s "Pirate" Squad was on one of its nightly prowls. Thanks to the vigilance of the squad only one person in 100 has a chance of getting away with piracy—the operating of radio and television receivers without a licence. In 1940, the number was 90 in 100!

Operating by night, when people are busy listening or viewing, the Pirate Squads carry out sweeps—street by street in a selected area. With delicate and expensive instruments, backed by scientists at Dollis Hill Experimental Station, the squad proves that pirating never pays. Dark green in colour, with no visible sign of their duties, the detector vans carry squads of Britain's finest engineers.

Silently my van drew into the kerb and the driver, switching off his engine, whispered, "This is it!" Again came the signal, "G.P.O. calling! G.P.O. calling!" —the warning that other vans were to close in for the kill.

"Wouldn't be in the pirates' shoes tonight", remarked my driver. While the van had been combing the streets, radio and TV sets by the hundred had been picked up on the ear-phones. "Switch off, over!" came the cryptic order of the chief engineer. And outside a block of flats he whispered, "They're all operating tonight."

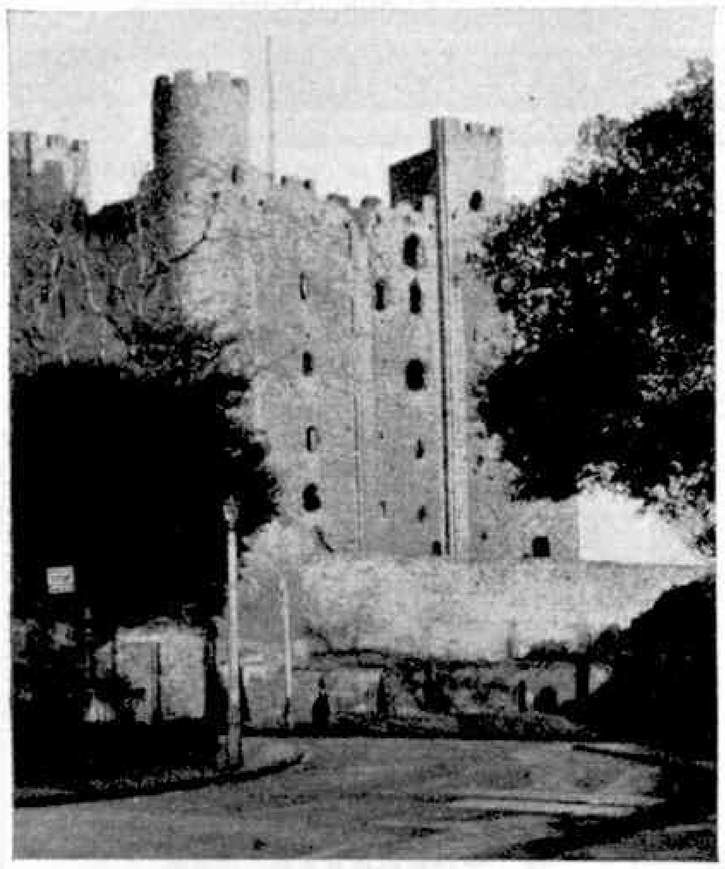
"Want to listen in?" he asked. Putting the ear-phones on I found myself listening to one of radio's popular shows. To me, it sounded better than in my own home. "True enough, we have more powerful pick-ups", was the explanation.

How does it work? Briefly the engineers know *before* they start knocking on doors whether the occupiers have licences. A check-list is prepared by the clerical staff, gathered from the postmasters who issue licences. When the sweep starts it is to check whether offenders are actually operating their sets. If the sets are dismantled or disconnected no offence is committed.

I heard how a detector van was unable to pick up one suspected pirate—until tactics were changed. Instead of carrying out sweeps at specified intervals the van doubled back on its trail—and picked up the culprit's radio set emitting a loud noise! It's an old dodge, and the engineers are equal to it. There are offenders who temporarily dismantle their sets and connect them again when the detector van has left the area!

The technique of tracking down pirates was developed in 1938 at the Dollis Hill Experimental Station. It enables all working receivers to be detected irrespective of whether outdoor aerials are used or not. The positions of houses containing the receivers are mapped out on a chart in each detector van. The detection equipment uses the induction magnetic field set up by a line-scanning coil of the radio or TV receiver; this field contains strong harmonics of the fundamental line-scanning frequency of 10.125 kc/s and these can be picked up by a sensitive receiver at distances of up to 250 feet. Three horizontal loop aerials are employed and these are tuned to the second harmonic (20.25 kc/s) of the line frequency. Mounted on the roof of the detector van in an L formation, they give no clue as to their real meaning. The outputs of the loops can be switched, in turn, to the input of the radio or TV receiver and the audio output heard on the headphones and indicated on an Audio Meter Level Reader. By noting the relative levels of the signals from the 3-loop aerials, the engineers obtain a clear indication of whether the receivers are in front of or behind the detector van.

(*Continued on page 132*)



THE ODD TOWER

By J. C. GEATER

THE massive Keep of Rochester Castle possesses an odd feature—one of its four towers is round; the three others are square. The odd tower is a reminder of one of the most famous sieges in English history.

On Sunday, October 11, 1215, King John advanced to besiege Rochester Castle, held by a garrison commanded by William de Albini, one of the leaders of the rebel barons. The garrison, consisting of about 100 knights and men-at-arms, with a few servants, was quickly driven from the outer walls into the keep. But the keep itself was not so easily taken. When early assaults failed, huge catapults were built, which battered at the walls day after day. Yet the huge stones they threw made no impression on the stout walls.

The king changed to another plan. He set his miners to drive a tunnel under one corner of the keep. After days of tunnelling the sweating miners reached the foundations of the tower, and excavated a huge chamber, the heavy walls being underpinned by wooden props.

This work must have been finished about November 25, 1215, because an old document records that on that day the king sent from Rochester a letter to his Justiciar, ordering him to send 40 pigs to Rochester without delay.

The fat from these unfortunate pigs was spread over heaps of dry wood, and shavings were placed around the strong props under the foundations. This inflammable mass was set alight, and blazed up, setting fire to the props holding up the walls. The props were burnt through, and the walls at the corner of the keep, being now unsupported, fell with a crash into the mine.

When the ruins had settled, the attackers rushed through the gaping breach into the keep. The defenders, however, had retired behind a huge cross-wall, which divided the keep in two, and were able to hold out in half their stronghold.

By now the defenders knew that no relieving forces would come to their aid. The baron's army had turned back, fearing to meet the king's forces. Food was nearly finished. There had been very little time to stock the castle for a siege, and for some time the garrison had been living on horse-flesh and water.

On November 30, after a seven weeks' siege, the garrison, much weakened by starvation, surrendered. At first, the enraged king ordered the leaders of the garrison to be hanged, but his friends persuaded him to change his mind, and they were imprisoned.

Eventually a tower was built to replace that destroyed by King John but, instead of being square like its predecessor, it was rebuilt as a round tower to make it more difficult to attack. To this day it has remained "the odd man out".

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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 130

For Stamp Enthusiasts

The New Chum

By F. E. Metcalfe

THE fine set of new stamps issued by that new full member of the British Commonwealth — Tanganyika — interested me particularly for long, long ago I was in that part of the world; and now, as I write these lines with almost frozen hands, how I would like to be back there again, if only for a warm-up!

During the first world war I was in the Royal Navy and in 1916 was detailed off, with a few others, to man whalers which had been commandeered from the Germans. Our job was to do patrols from Zanzibar, down the Tanganyika coast as far as Portuguese East Africa. We got to the Cape on a "Castle" boat, and then took the *Ingoma* up to Dar es Salaam. We were glad to get off that latter boat, for we were packed like herrings. Years afterwards I took a passage on a very pleasant ship in the West Indies, and discovered that it was the old *Ingoma* under a new name! I have not space here to tell the story of why the name had been changed, but it was not changed for fun.



We did not do more than one run down the Tanganyika coast, on the first whaler I went on, the *Childers*, as unfortunately we ran on to the coral just south of Port Amelia, and for all I know the ship is still there. H.M.S. *Challenger* came to try to pull us off, but the tow line parted, and so did *Challenger*, and we never saw that ship again. Years later I heard that the *Childers* was where we left her, but that's another story. I must get on to my subject of Tanganyika stamps or I will not have any room left in which to do so.

The new set was issued on December 9 last year and, although it is the first this country has issued as a full member of the Commonwealth, it is by no means the first set in Tanganyika's history. When I was there stamps bearing the title Deutsch-Ostafrika (German East Africa) were to be found in the shops of Dar es Salaam. In fact, there were a lot of the stamps about, and it is a pity I did not pick up some of them, for they are rather scarce now.

At the time the first world war broke out Tanganyika belonged to Germany, hence the German stamps just mentioned,



and during that conflict stamps of Nyasaland overprinted N.F., and of Kenya and Uganda overprinted G.E.A., were used. When the war ended we took over the mandate, and in 1922 issued stamps in two sizes, the large ones from 1/– value, bearing the head of a giraffe. (Some stamps of India were even overprinted for us by the Indian Expeditionary Forces, but I am afraid that a number of these stamps are quite scarce.) Readers who want to start a bit further back than the latest Tanganyika issue could well begin with the "Giraffe" of 1922, which was the first to bear the country's name. The 5c., 10c., 25c. and 30c. values are to be found in two colours, and while the catalogue value of some of them is rather high it is often quite possible to pick up odd copies from time to time at very much less than the catalogue indicates. But don't be tempted to buy poor copies just because the price is low (there are plenty of these about), for they won't be bargains at any price.

The next issue appeared during 1927 to 1931, and these stamps, again in two sizes, showed the head of King George V and bore the inscription Mandated Territory of Tanganyika. This was the last issue, until the new one, which this territory had for itself only, for new stamps appeared in 1935 with the inscription Kenya, Uganda and Tanganyika, again with the King's head, but with some values depicting a dhow on the huge Lake Victoria, and the rest a lion.

The stamps were repeated in 1938, the only change being the head of King George VI instead of that of his father. Now this first "KGVI" issue is full of interest for philatelists, as not only were there changes in colour but also perforation varieties galore, some quite rare. For instance, the first £1 (perf. $11\frac{3}{4} \times 13$ is listed in the Commonwealth KGVI Catalogue at £13 mint and £4 used, while the perf. 14 is listed only at £2 mint and 25/– used) is very dear to buy, but other perforation varieties are much cheaper. In all, this is a very interesting set, with many values within the reach of all of us, for they are quite common.



In 1954 we got the first "QEII" issue for the same three territories, to be followed by yet another in 1960 (one of many interesting animal designs) and this covered matters postally until the new set, which is for Tanganyika only, as political connection with Kenya and Uganda is broken.

And what of this new issue, which is proving so popular, and which makes an excellent starting point for those who want to take up this country? The values up to and including the 50c. stamp are a bit too small to do justice to the designs, and for this reason I feel it is a pity they have not been made as large as the rest, but I think that it is the design on the 1/30c. and £1 stamps which is of most interest.

You will remember, I am sure, the beacon that was lit on Mount Kilimanjaro, that giant peak which is right on the Equator yet which is capped with snow. Well, the stamps mentioned show a torch thrusting through the mist which sometimes envelops the mountain, with the summit itself in the background.



Another design of particular interest is that of the 10/– value. On it you see a representation of the famous pink diamond which was presented to the Queen by the one who found the fabulous diamond field. Well, that's a brief story of our latest sister country. I think her postage stamps are going to be well worth collecting, even if you only start with the new 1961 issue.

Stamp Gossip

Forests

I REALLY should not ask our Editor to illustrate the Indian "Forest Centenary" stamp, issued on November 21 last year, when there are so many other stamps crying out to be illustrated, but it is so beautifully designed and deals with such a fascinating subject—the scientific care of forests—that I simply cannot resist doing so. Moreover, as I have stated on several occasions, modern Indian special issues are very worthy of interest, covering as they do so many interesting subjects and people. Their low face value, plus





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200 Hungary	..	3/4	25 S. West Africa		3/–
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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 128

Stamp Gossip—(*Continued from page 131*)

that which has most caught the imagination depicts the Three Musketeers. We all know of the book, for they made a grand



movie of it (which is the way many of us take in literature, these days). Anyhow, who can resist this set? I could not, although I am afraid it knocked me back 12/–. But it was worth it.

THE MONTH'S TIP

An *M.M.* reader recently wrote to say that he had acted on one of my tips and bought a stamp for 7/6d. which is now worth several times that sum. That's fine, but stamp collecting is a hobby which yields its own dividend, in the way of enjoyment. All the same, this is the reason why we like to pick up a bargain now and again—many of us spend a good deal more on our stamps than we can afford to expend on a hobby, and if, when we come to sell our collections, we have not picked one or two "snips" we shall not perhaps sell out as well as we would have liked. So there is nothing very wrong about looking round, and we could probably not do better than take care to buy, while they are current, the very nice little special issues which various countries in the Commonwealth are issuing from time to time. For instance, make sure you have the British Guiana "History and Culture Week" issue. I happen to know that local supplies were sold out so quickly that many may have missed them.

ALL-NIGHT PETROL STATIONS

Thousands of motorists and motor-cyclists will welcome a new R.A.C. 28-page booklet just published, "All-Night Petrol Stations".

Aiming primarily at helping members who have to make long journeys at night, the booklet lists, county by county, garages and filling stations in England, Scotland and Wales where petrol can be obtained during the hours when most garages are closed. It also includes a number of filling stations which stay open until midnight. Ministry of Transport road numbers are quoted by the side of each entry to aid the traveller to locate the garage easily.

Free to members, "All-Night Petrol Stations" is obtainable from all R.A.C. offices.

their cheapness, makes them suitable for all, and this "Forest" stamp is certainly no exception.

How wonderful those forests of mighty India must be. Our own country has its forests, and there is a good deal of grumbling about them from those who put scenic beauty first. In some respects we are not quite as practical as we imagine. I wonder what the critics would say if attempts were made to plant some of India's giant trees in our own Lake District, for instance? Curtain on such a painful subject!

POSTAL CENTENARIES

It is now 22 years since Great Britain commemorated the world's first stamp with an issue which has not been equalled yet for dullness and lack of inspiration. During this long period one country after another has marked the occasion of its own postal centenary with a set of stamps. One of the latest to do so is Greece, with a set of seven, each of which features the first Greek stamp, depicting the head of Hermes, herald of the gods in Greek mythology. Today, Greece is producing some wonderfully designed stamps, but it must be admitted that the first one, illustrated here, takes a lot of beating.



Gradually these stamp issues commemorating postal centenaries are building up into a fascinating collection, and collectors will be wise to hang on to any nice copies which come their way, especially if the postmarks have the centenary date.

WATCH SOUTH AFRICA

When the Union of South Africa left the Commonwealth it was thought that many people who only collected British stamps would be dropping South Africa's issues, but this has not proved to be the case. They seem, in fact, to be as popular as ever, and this means, no doubt, that there are plenty of *Meccano Magazine* readers who are interested in the stamps in question. A word, therefore, to these enthusiasts advising them to make sure to buy any new stamps which appear, as some of them may turn out to be quite scarce. This is due, of course, to the stamps which have been appearing without watermark. The designs have not changed (except the redrawn 2½c. mentioned some time ago) but the printers have paper with and without watermark, and apparently either is used when a new printing is made.

I am sure this state of affairs will not continue, and that eventually there will be a decision to go on using one or the other, not both as at present. Then it may be found that some of the values of the obsolete type are scarce. It generally happens like that with stamps, so to repeat—keep up to date with the current stamps. There will be nothing to lose and maybe a good bit to gain, in the way of scarce items.

I was discussing, with an old collector, the question of the continued popularity of South African stamps, and he expressed the opinion that it is these changes of design, and stamps popping up with and without watermark, which has kept the pot boiling, so to speak, for—as he put it—collectors love the unexpected. He may be right; he may be wrong, but popular these stamps certainly are, and that is all that concerns us.

"PHOSPHOR" STAMPS

All collectors know about the stamps which are specially treated so that envelopes to which they are affixed can be separated electronically. Until recently this was only being done in England, at Southampton, but appropriate machinery (British) is being installed in Canada, so that the same operation can be carried out there, and suitable stamps are already on sale in Winnipeg. When the idea was first tried out a graphite preparation was used, and this was applied in the form of black lines on the backs of stamps up to the 4½d. value (two lines on all values except the 2d. and this had only one line). Recently, however, a quantity of old paper was used up, where the lines were all over the place, and collectors have had great fun sorting out these stamps which, of course, could be easily picked out.

Later the lines were changed, and a colourless "phosphor" preparation used. Incidentally, while the "graphite" lines were on the backs of stamps, the "phosphor" lines are on the face and as they are practically colourless, it is almost impossible to detect these latter interesting stamps. But here's a tip—if you have any copies (used, of course) which you think may be the "phosphor" kind just pop them in boiling water for a minute or two. Then take them out and allow them to dry. If they *are* "phosphor" the lines will show up quite white on the face of the stamps. I think perhaps this may be the best way to collect them used, otherwise they will just look like ordinary stamps. You must not soak the mint stamps, of course.

THE THREE MUSKETEERS

You know we really cannot wonder at the popularity of postage stamps, particularly those modern issues, with such designs as the Haiti stamp illustrated, which forms part of a set issued to commemorate the centenary of the birth of the great French novelist Alexandre Dumas.

Of the six stamps (three ordinary and three air) with various designs—including portraits of Dumas senior and of his son—

(*Continued on previous page*)

By E. W. Argyle

Locomotives On Stamps



THE steam locomotive shown on the Danish 20 ore stamp above is of the H class, being a 2–8–0 three-cylinder tender locomotive for mixed and freight traffic, built in 1941 by Messrs. Frichs, of Aarhus. Its principal dimensions are: Heating surface (fire side), all tubes and firebox 151 sq. m.; superheater 55 sq. m. Weight of locomotive in working order, 83.3 tons. Tender in working order 57 tons. Maximum speed, 80 kilometres an hour.



Depicted on our second stamp this month is No. 534.0471, built in 1945 by Skoda at Pilsen, for the Czechoslovakian State Railways. This 2–10–0 locomotive is one of the most powerful goods engines on the C.S.R. and large numbers of its class were constructed in batches for several years. It is specially suitable for working on difficult, curved mountain lines, the engine's second and fifth coupled axles having a sideways movement, and the large flange of the driving wheel being reduced in thickness.

Police Dogs on Patrol—

(*Continued from page 93*)

gardens. Kennels and dog runs are provided in the gardens, and in this way each unit can work independently, one handler looking after both dogs when his neighbour is on duty elsewhere.

The duty of the divisional dog handlers is to cover the whole area of the division so far as police dog work is concerned, moving from place to place as the need arises. Motor vans fitted with two dog cages at the rear, and equipped with radio, are used to get the team to the scene of operations. Most of the work done by police dogs is performed in the evening and at night, as the best use can be made of them at that time of day. But they are on call for 24 hours, and have to turn out any time, regardless of whatever duties they have already performed that day.

In addition to the divisional dog handlers, some police forces have other dog handlers performing regular foot patrols with their dogs instead of being called out simply for special jobs. This patrolling the beat with Alsatians has proved most successful in the thickly-populated areas of such cities as Liverpool and Manchester, where the presence of a policeman on the beat, with his dog, prevents rowdyism and unruly behaviour.

You may ask what becomes of these canine guardians of the law when their police force days are over. They are not destroyed, but are found good homes in their retirement.

It is now generally considered that trained police dogs are one of the greatest deterrents to criminal activities. In addition to their very thorough training they undergo refresher courses, at fairly frequent intervals, so that they do not forget their lessons.

The Mystery of the "Waratah"—

(*Continued from page 103*)

reason, she had been travelling so slowly, why had the *Clan MacIntyre* not sighted her as she came up behind on the same course?

In the weeks that followed there were reports of bodies in the sea but none of these reports was proved. The crew of the ship *Tottenham* thought they saw bodies on August 11, but what they in fact saw were sunfish or skate. Week after week the seas were scoured. Three warships were among the searchers, and the Australian Government paid the expenses of the *Severn* which sailed 2,700 miles in four weeks, but found nothing. The most thorough search, however, was carried out by the *Sabine*, which had been specially chartered by the Blue Anchor Line. For 88 days, from September 11, she cruised 14,000 miles. Following the theory that, since no wreckage had been discovered, the *Waratah* may have become a drifting derelict, the *Sabine* followed the ocean currents to the lonely island of St. Paul, but although she discovered a number of wrecks she failed to find a clue to the fate of the *Waratah*.

Even the Court of Inquiry which considered all the available evidence could not offer a solution to the mystery. Its eventual finding was that "the ship was lost in a gale of exceptional violence, the first great storm she had encountered, and the vessel capsized."

What really happened will probably never be known, but it is almost certain that the *Waratah* went down in the hurricane before there was time to launch the lifeboats or make distress signals. But even if this is the answer, why was no wreckage, such as deck chairs, lifebelts, or the hundred and one other pieces of equipment which would float, seen by the scores of ships which travelled that busy sea route off the eastern coast of South Africa?

Hornby-Dublo (*Layout Man*)—

(*Continued from page 123*)

so that trains are of easily manageable length, a point that is important when they have to be stowed away into sidings.

Oil for the diesels

Turning now to our third picture, taken on the layout of S. F. Page, of St. Albans, we have an interesting instance, in miniature, of one form of motive power helping another. The Hornby-Dublo 0–6–0 Tank Locomotive shown is bringing a train of Esso Fuel Oil Tank Wagons into a motive power depot on the layout, the cargo in the tanks being intended for the Diesel Locomotives that share in the working of the layout.

It might be argued that a Diesel Shunting Locomotive would be more appropriate for a train of this kind. There is something to be said for this point of view, but in the picture I find the homely outlines of the 0–6–0 Tank very satisfying.

The scene is one that could be observed in real life at the many depots where nowadays diesel and steam locomotives live more or less side-by-side.

Meccano's New Look—

(*Continued from page 114*)

introduced a $1\frac{1}{2}'' \times 1\frac{1}{2}''$ Flat Plate (Part No. 74). I am sure that this will prove a most useful component and a very welcome addition to the range.

In addition to the inclusion of these entirely new Parts in the system, modifications have been made to certain existing Meccano parts. The most important of these is the Braced Girder. In future, the design of this Part will be as shown in our illustration on page 111, and it will be available in the five different lengths listed under the drawing.

A small alteration has been made in regard to Part No. 22 1″ Pulley, with boss and screw. In future, this Pulley will be fitted with a grub screw, instead of a set-screw as in the past.

Easy Model-Building—

(*Continued from page 115*)

ornament on the front of the bonnet consists of a Collar mounted on a $\frac{1}{2}''$ Bolt. The radio aerial is a 4″ Rod held in a Rod and Strip Connector bolted to the side of the car. A *Magic* Motor if available can be fitted to the model in the position shown in Fig. 2.

Parts required to build the Meccano Motor Car: 2 of No. 1; 2 of No. 1a; 4 of No. 2; 4 of No. 3; 1 of No. 4; 2 of No. 6; 4 of No. 10; 26 of No. 12; 1 of No. 12c; 1 of No. 15; 1 of No. 15b; 1 of No. 16; 1 of No. 18b; 2 of No. 22a; 1 of No. 24a; 94 of No. 37a; 94 of No. 37b; 4 of No. 38; 2 of No. 38d; 1 of No. 48; 1 of No. 48b; 1 of No. 51; 3 of No. 59; 1 of No. 126; 2 of No. 136; 4 of No. 187; 2 of No. 189; 2 of No. 190; 2 of No. 191; 2 of No. 192; 2 of No. 193d; 2 of No. 194e; 2 of No. 199; 1 of No. 212; 2 of No. 214; 4 of No. 215; 2 of No. 221; 2 of No. 235.

The G.P.O. "Pirate" Squad—

(*Continued from page 127*)

Perhaps the receivers are to the right or left—the detector van equipment still picks them out quickly. For example, when the van passes in front of a house on the same side of the street which contains a working radio or TV receiver, the indications from the fore and aft loop aerials are equal, and those from the off-side loop aerial are weaker than that from the other two.

The strength of the induction magnetic field varies inversely as the cube of the distance, and this fact enables receivers, even in adjacent premises, to be separately detected. The brick walls of houses have no effect on the magnetic field at the relatively low frequency (20.25 kc/s) used.

A portable detector "gun" can be carried. This is used to trace receivers in flats and buildings where more than one set is operating at the same time, or for the engineers to walk where the van cannot be driven.

This same technique is applied to detect outside radio or TV interference. Over a period of nights, my own radio receiver had suffered from intense crackling and was corrected by the G.P.O. Pirate Detector Squad. Suppressors were fitted to the offending source of interference, which proved to be a washing machine.

In all kinds of weather the squad makes its sweeps or "combs". The total number of licences current in England at April 30, 1961 was 9,147,333 for television, and 6,473,275 for radio.

The average number of prosecutions against radio and TV pirates is 7,500 for the entire country. It says much for the vigilance of the squad that in one northern city, with a population of 450,000, there were only 73 prosecutions last year. One person in every 50 attempts to evade licences.

Hear that crackle? See that flash? Better ask father if he has a licence. You never know!

Calling All Bus Spotters—

(*Continued from page 110*)

m.p.h. Presumably each vehicle would have to have a plate to this effect affixed to the rear, as was the case with heavy goods vehicles restricted to 20 m.p.h. until quite recently. I feel this is an idea worth investigating further.

Still on the subject of speed, Richard Gibson, of Worthing, has worked out for me some interesting statistics about speeds on Southdown Motor Services routes. Apparently the fastest service is route 142 (Petersfield town service) which is scheduled to complete its comparatively short journey at 30 m.p.h. On the other hand a Worthing town service (route 6) runs at a mere 8½ m.p.h., although the slowest of the company's double-decked routes, pay-as-you-enter service 35 (Burgess Hill town service) runs at only 7 m.p.h. On the other hand P.A.Y.E. route 53A (Chichester–Itchenor), which is double-decked in the summer months, completes its run at an average of 20 m.p.h. Very interesting is the fact that whereas Southdown's shortest route, service 70A (Arundel town service) takes four minutes to cover its one mile between termini (i.e. average of 15 m.p.h.), the operator's longest route, 122 (Brighton–Gravesend) covers the 62 miles between these two towns in 4 hrs. 6 mins. (3 hrs. 59 mins. actual travelling time), which also averages approximately 15 m.p.h.

I am typing this paragraph to the accompaniment of my record player which is not reproducing the sounds of the London Symphony Orchestra, or those of "The Shadows", but of a Glasgow tramcar. I can hear the tram rumbling through the streets of that great city, applying its brakes, screeching to a halt, the conductor ringing off, the gathering of momentum, the hoots of passing vehicles. This L.P. record was issued at the end of 1960 by the Scottish Tramway Museum Society and can be obtained from their secretary at 46 Wellshot Drive, Cambuslang, Glasgow, for 30/–. On side one we hear the chimes of Glasgow University, followed by a journey in sound over route 27 (Coplawhill – Mosspark – City Centre – Newlands – Coplawhill) and it has been recorded at 16 r.p.m. Side two (to be played at 33 r.p.m.) deals with two popular types of Glasgow tramcars—the "Coronation" and the "Cunarder"—and was recorded on the reserve track between Dumbreck and Mosspark. I wonder whether any readers have heard any other recordings, on either discs or tape, of bus, coach, trolleybus (!) or tram sounds, or have perhaps made such a recording themselves. Alternatively, has anyone a bright idea about sounds worth recording in the future, suggesting the possible composition of such a tape or disc? Please send your views to me c/o Editorial Department, *Meccano Magazine*, Binns Road, Liverpool 13. If you want a reply from me, don't forget that stamped addressed envelope.

Fireside Fun



"He says he's a Bristol Rover, Ref!"

"Has this dog got a pedigree?" asked the cautious purchaser.

"Pedigree, lady?" said the vendor. "Why, if this 'ere dog could talk 'e wouldn't speak to neither of us."

* * * *

"Can you give me a prescription for my hair?" queried the patient. "It worries me."

"Don't worry, old man," said the specialist, "it'll all come out all right."



"Mine's a two hundred conker!"

If a man runs after money, he's money-mad; if he keeps it, he's a capitalist; if he spends it, he's a playboy; if he doesn't get it, he lacks ambition; if he gets it without working for it, he's a parasite; and if he accumulates it during a lifetime of hard work, he is called a fool who never got anything out of life.

* * * *

A sergeant spoke his piece about the shoes the recruit wore on parade. The latter explained that he had worn them in civil life.

"So what?" snapped the sergeant. "Did you have a top hat when you were a civilian, too?"

"Why, yes."

"Then why don't you wear that here?"

"Don't be silly," snapped the recruit. "Who ever heard of wearing a top hat with brown shoes?"



"His hobby's fretwork."

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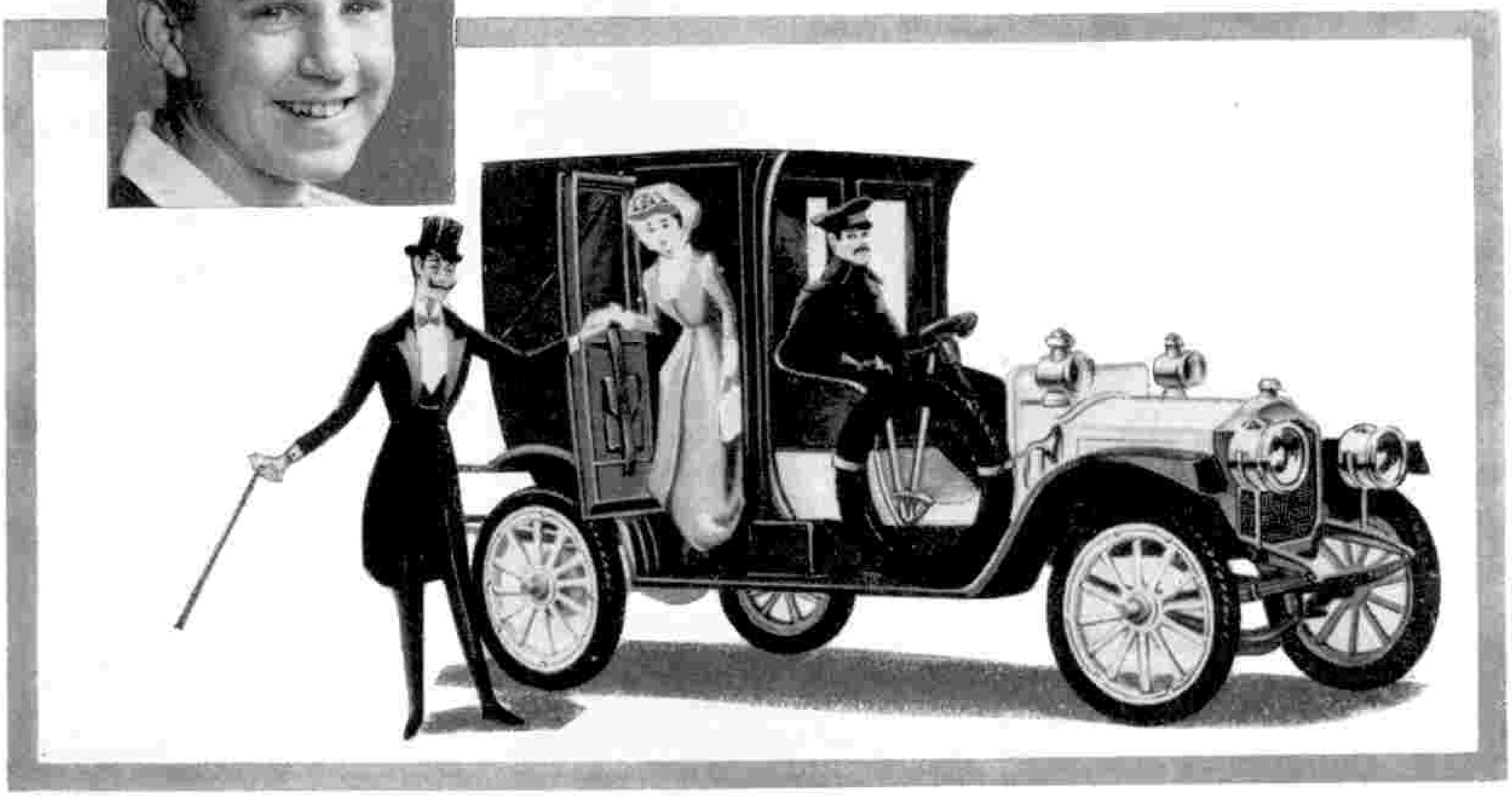
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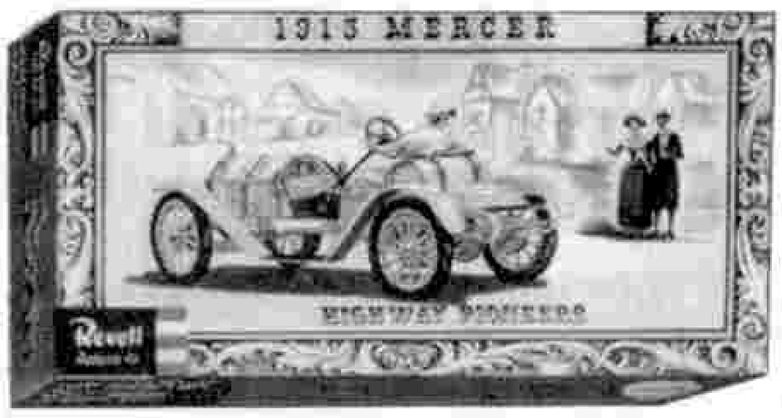
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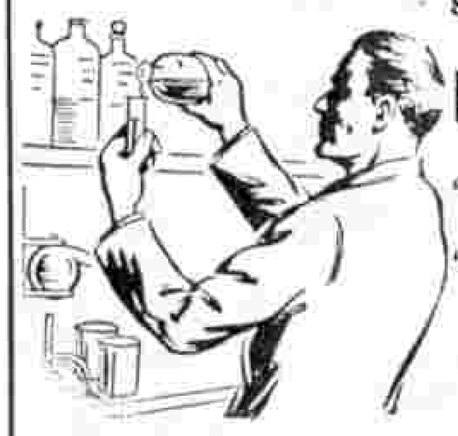
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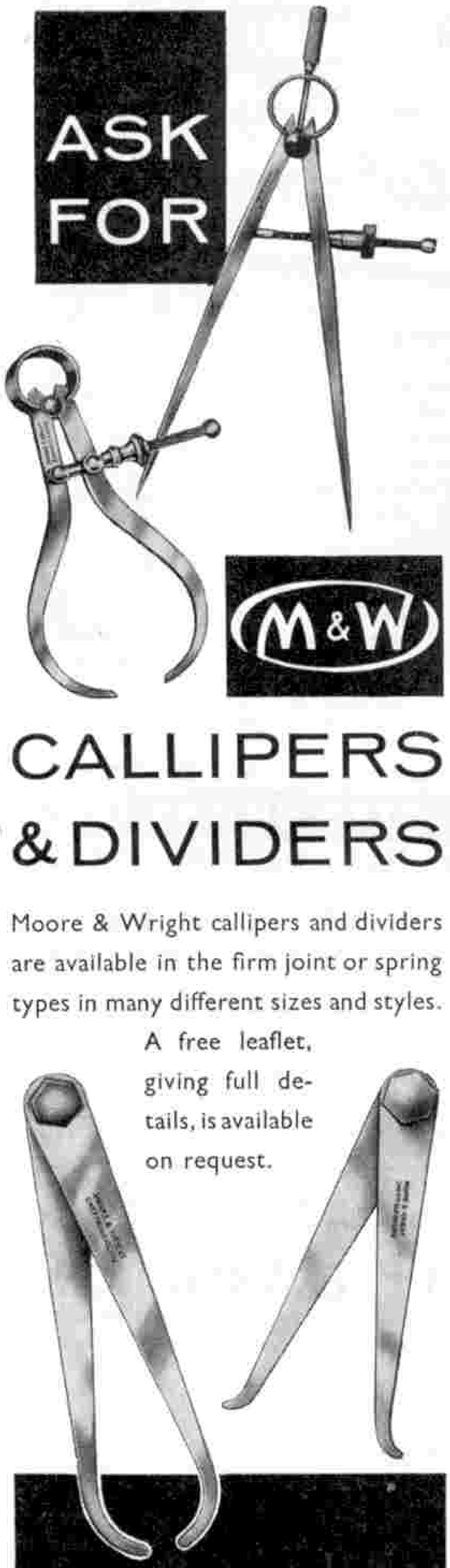
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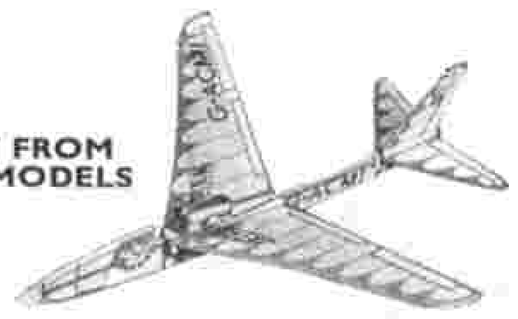
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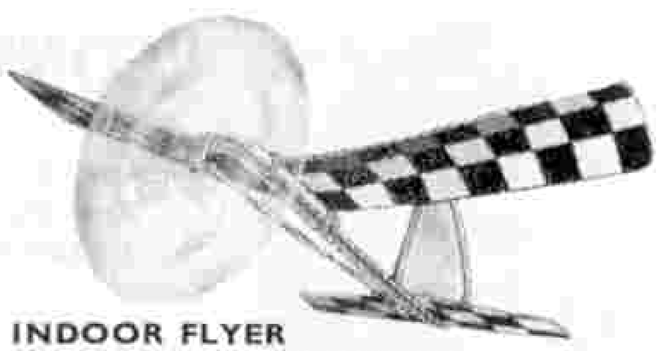


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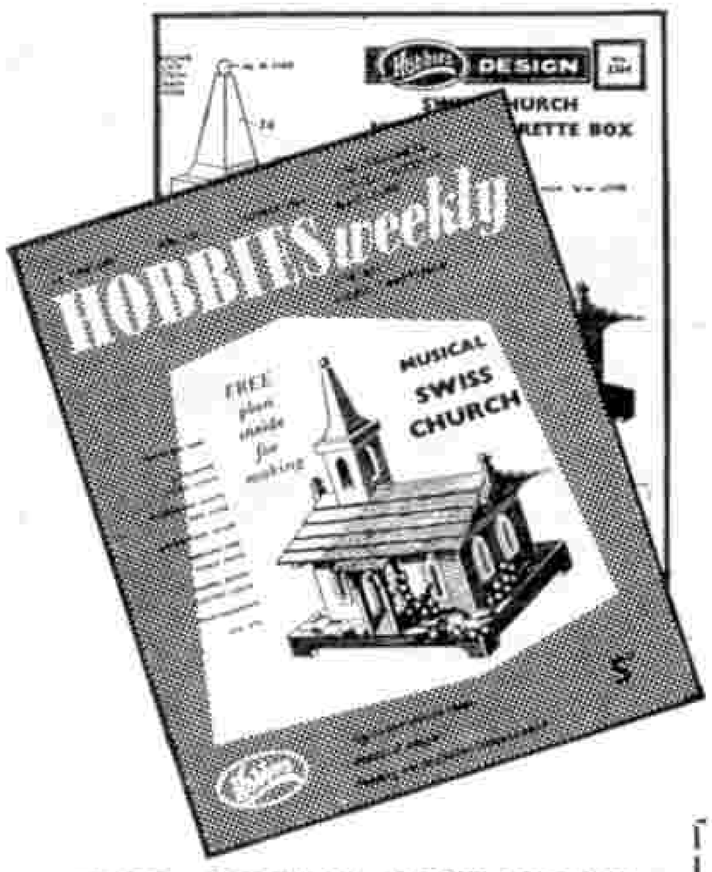


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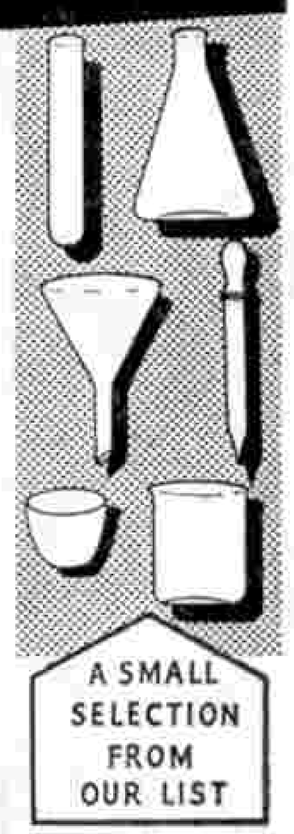
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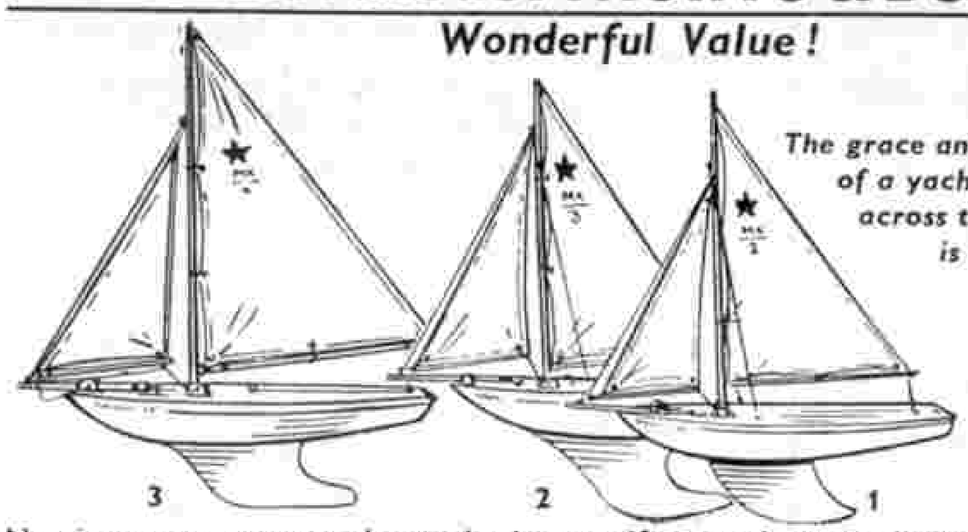
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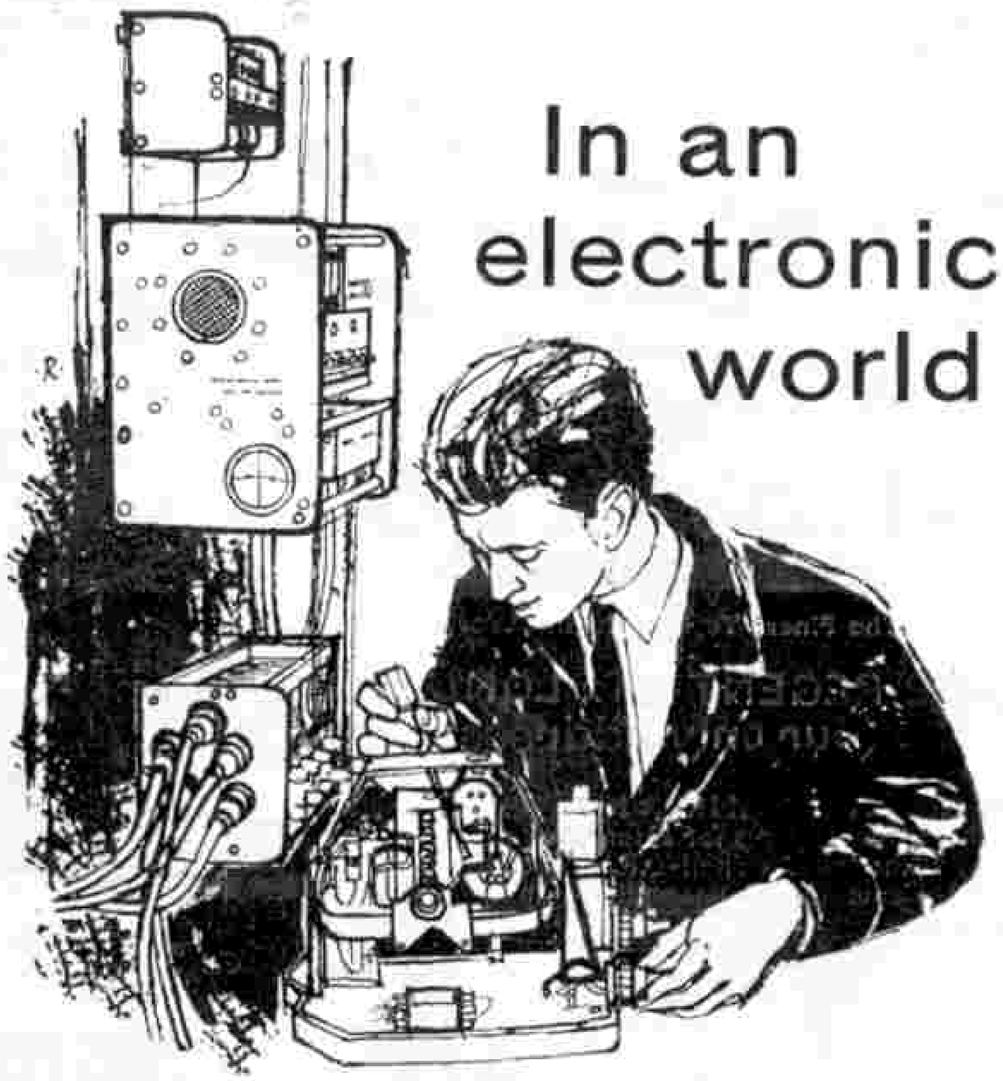
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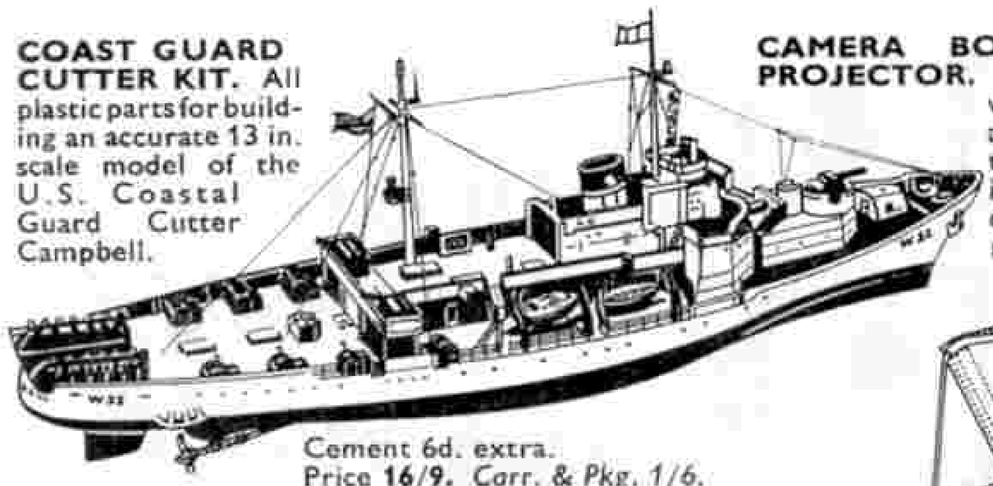
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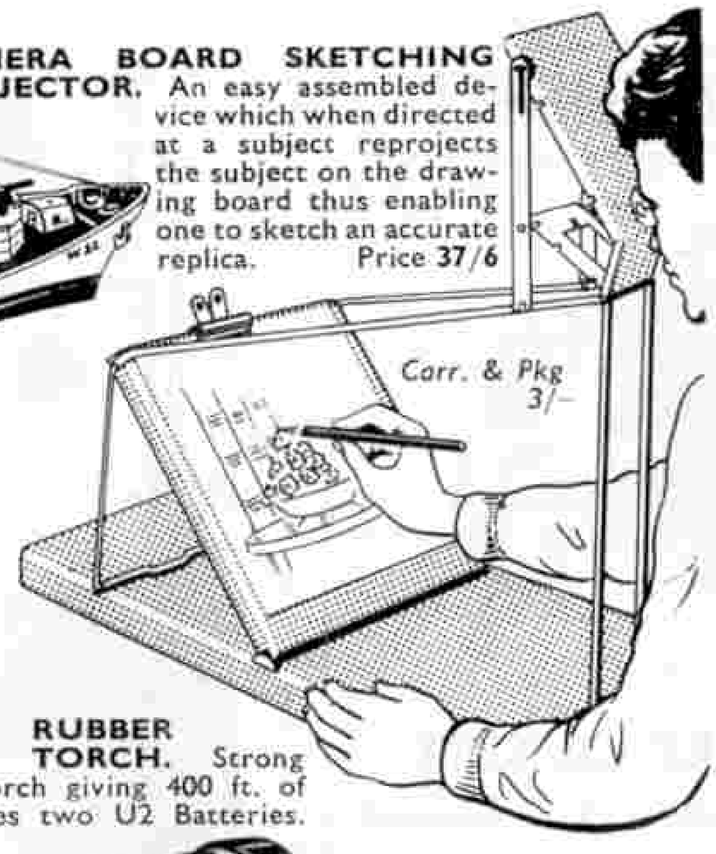
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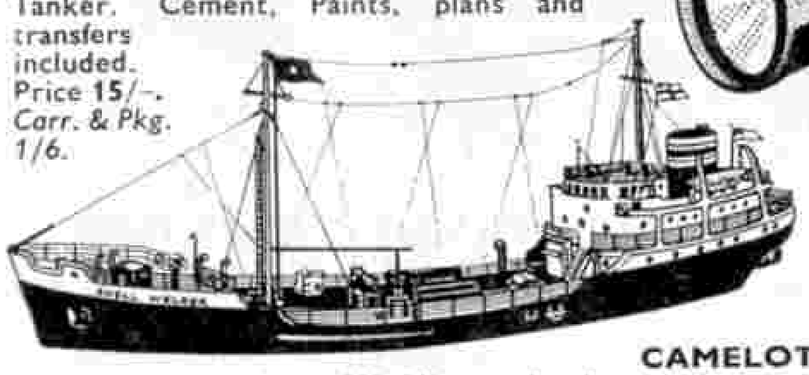
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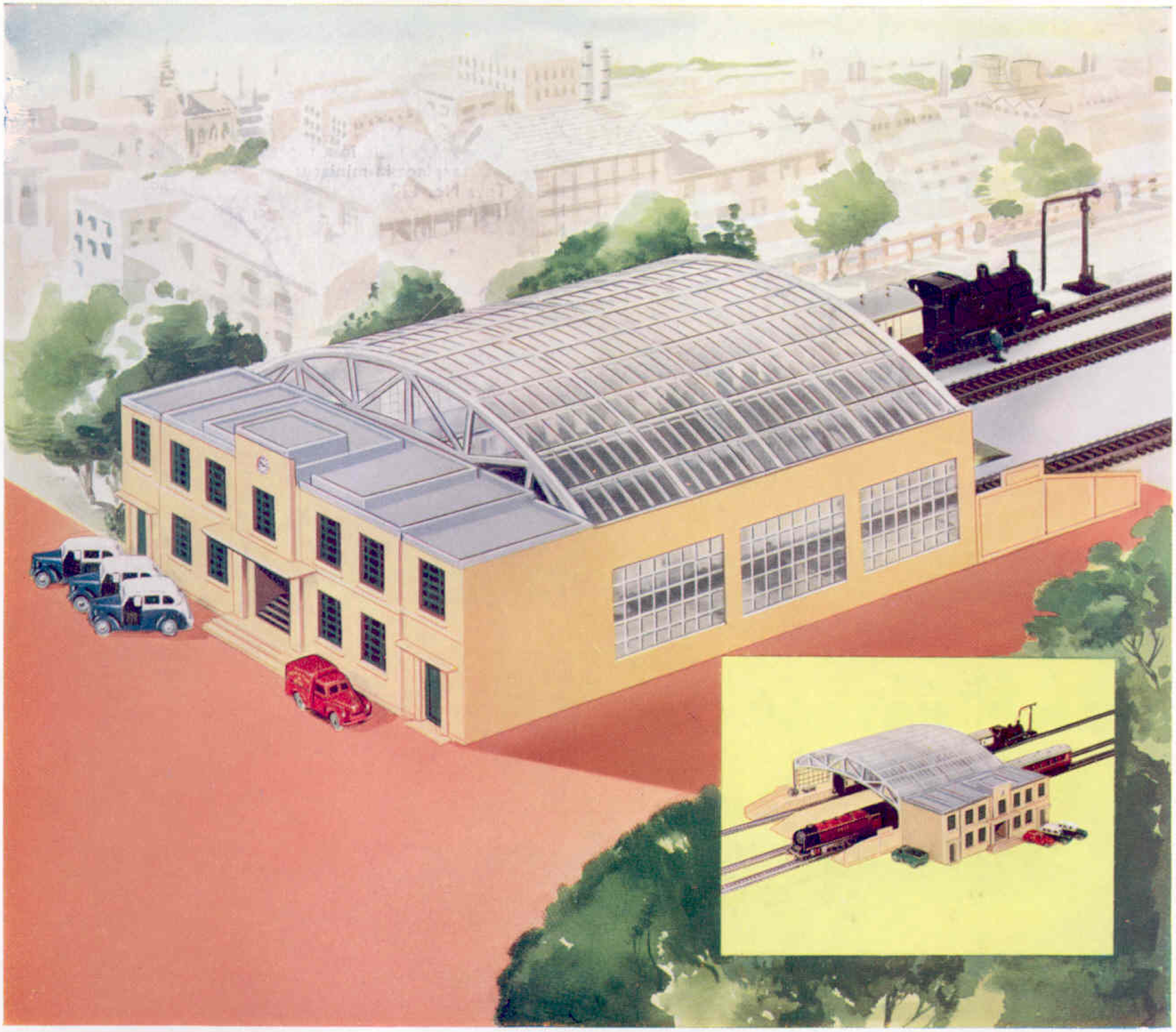
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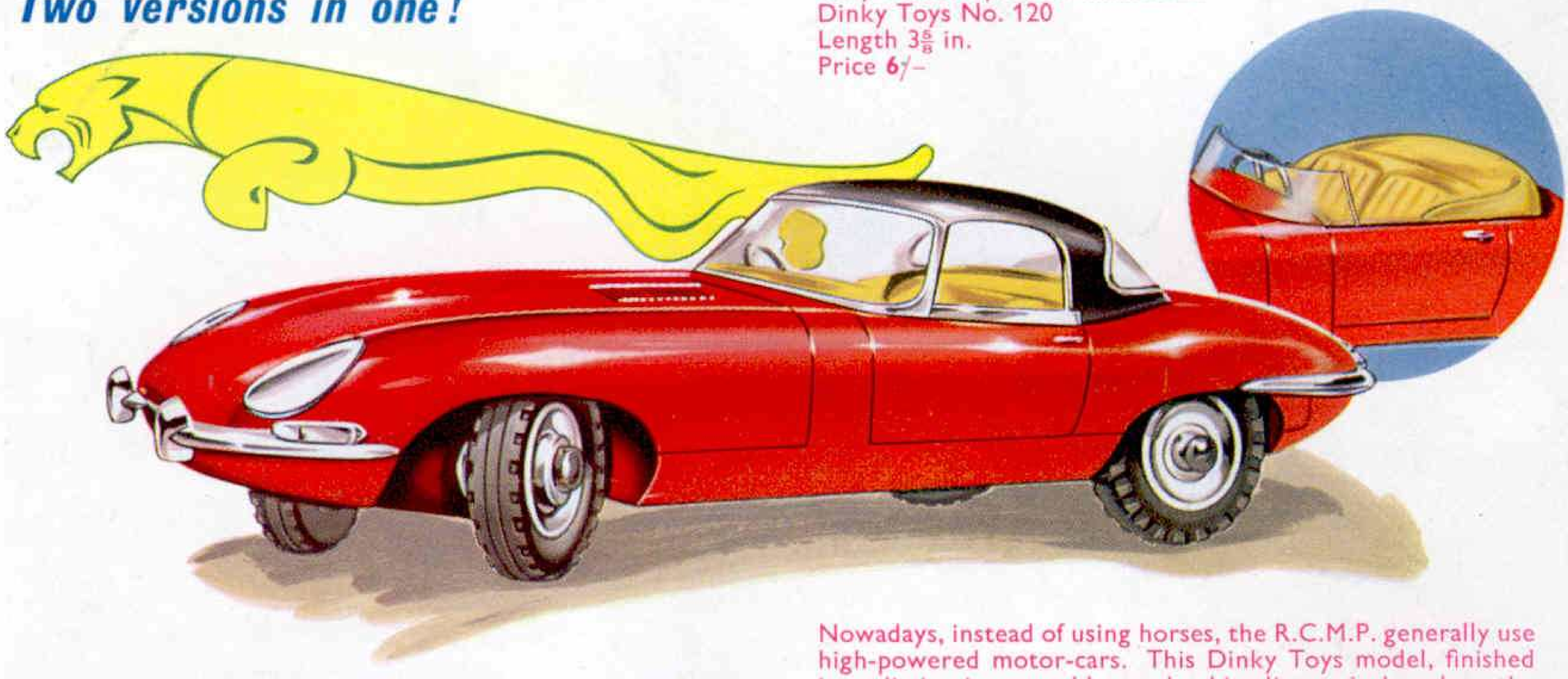
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